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Western Amazonian Ateleutina (Hymenoptera, Ichneumonidae, Cryptinae)

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Abstract

Ateleutina is a small subtribe of Cryptinae (Ichneumonidae) composed of two genera: *Ateleute* Förster and *Tamaulipeca* Kasparyan. Neither of the genera includes species described from South America. In this article five new species of *Ateleute* (*A. ashaninka* **sp. n.** and *A. amarakaeri* from Peru, *A. shuar* **sp. n.** from Ecuador and Peru, and *A. huaorani* **sp. n.** and *A. kichua* **sp. n.** from Ecuador) and three new species of *Tamaulipeca* (*T. bora* **sp. n.** from Ecuador and Peru, *T. candoshi* **sp. n.** from Ecuador and *T. matses* **sp. n.** from Peru) are described and illustrated from Western Amazonia. Identification keys to the known South American species of the genera are provided.

Keywords

Amazonia, Andes, Ecuador, Parasitoid wasp, Peru, Taxonomy, Tropical

Introduction

Ateleutina is a small subtribe of Cryptini proposed by Townes (1970). It was originally based only on one genus, *Ateleute* Förster, 1869. Recently, another genus, *Tamaulipeca* Kasparyan, 2000, was described from Costa Rica and Mexico (Kasparyan and Hernández 2000).

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Despite the fact that recent molecular studies discourage the use of the traditional Cryptinae subtribes of Townes (Laurenne et al. 2006), since the most part of them are not monophyletic groups, no new classification of genera has been proposed. In accordance, we consider Ateleutina *sensu* Townes as a framework for the present study.

Ateleute is a nearly cosmopolitan genus with 35 described species. A large part of the species are tropical in distribution: 24 are Ethiopian, 3 Palearctic, 1 Nearctic and Neotropical, 2 Neotropical and 5 Oriental (Yu et al. 2005, Sheng et al. 2011). *Tamaulipeca* comprises only two described species from Mexico and Costa Rica (Kasparyan and Hernández 2000).

The distribution of Ateleutina is interesting, as no species have been described from South America despite most of the *Ateleute* species being tropical in the Old World. However, already Townes (1967) mentioned having seen three undescribed species of *Ateleute* from Peru.

Almost nothing is known about the biology of Ateleutina. Townes (1967) reported that *A. carolina* Townes was reared several times from a psychid (Lepidoptera: Psychidae).

All species of Atelutina show a high degree of sexual dimorphism (Seyrig 1952, Townes 1967, Kasparyan and Hernández 2000).

In several sampling programs collecting parasitoid wasps, carried out in Western Amazonia, we have found eight new species of *Ateleute* and *Tamaulipeca*. The aim of the present paper is to describe and illustrate all of them and to provide an identification key for these South American species.

Material and methods

The Peruvian specimens were collected mainly in the course of two projects. The sampling program coordinated by S. Bordera and A. Rodríguez-Berrío was carried out from February 2008 to February 2009 in three Peruvian ecosystems: 1) the coastal valleys of Cañete (200–400 m) and Huaral (400-900 m), located in the central part of the coastal desert; 2) the central Andes in El Ingenio (Huancayo, 3,200 m); and 3) premontane tropical rain forest in the "Fundo Genova", Chanchamayo, Department of Junín (1,066–1,080 m). In this project Ateleutina were found only in Fundo Genova Trap 2. (11°05'44.8"S, 75°21'17.7"W, 1069 m) and Trap 4. (11°05'45.1"S, 75°21'21.8"W, 1075 m.). More information about the vegetation and climate of the area is given in Alvarado et al. (2011).

The second Peruvian sampling program was coordinated by I. Sääksjärvi in the 56,000 ha National Reserve of Allpahuayo-Mishana, approximately 3°57'S, 73°16'W (e.g. Sääksjärvi et al. 2004). The reserve is located about 25 km south of Iquitos in the Department of Loreto. The area is primarily moist tropical forest. General descriptions of the climate, geology and vegetation of the area are given in Kalliola and Flores Paitán (1998).

Specimens from Southern Peruvian Amazonia were also collected by Malaise trapping in Madre de Dios, by Isrrael Gómez (ZMUT). The study site is located near the Manu National Park.

Ecuadorian specimens were collected by canopy fogging in Onkone Gare, Department of Orellana, Ecuador, by Dr. Terry Erwin (USNM). The study site is located near the border of the Yasuní National Park.

The specimens are deposited in the following collections: Entomological Collection, University of Alicante, CIBIO, Spain (CEUA), Entomological Museum Klaus Raven Büller, Universidad Nacional Agraria la Molina, Lima, Peru (MEKRB), Smithsonian Institution, USA (USNM), University of San Marcos, Lima, Peru (UNSM) and The Zoological Museum, Section of Biodiversity and Environmental Research, Department of Biology, University of Turku, Finland (ZMUT). The specimens deposited at the USNM and UNSM are currently on loan to the ZMUT.

Observations were made using Olympus SZX10, Olympus SZX16, and Wild M3Z stereomicroscopes. Layer photos were taken in ZMUT using an Olympus SZX16 attached to an Olympus E520 digital camera. Digital photos were combined using the programs Deep Focus 3.1 and QuickPHOTO CAMERA 2.3. The SEM-images were taken using a Hitachi S-3000N scanning electron microscope (in low vacuum mode) in the University of Alicante, Spain. Morphological terminology follows Gauld (1991).

Results

Despite the large sampling effort (e.g. 300 Malaise trap months in different Peruvian ecosystems), only 16 females and 9 males belonging to Ateleutina were collected, all of them from moist tropical forests.

The females and males we have found in the field differ greatly from each other in all localities. The females of all species are coloured red, brown, black and white, while all males are uniformly brown or black in coloration (Figs 2A-E; 8A-D).

In *Ateleute* we have been able to put forward a proposal of sexual associations based on external morphological characters, but for *Tamaulipeca* we have not been able to link the only male to any of the females, therefore a description and illustration of this specimen is provided without assigning it to any of the species.

Taxonomic recognition of Ateleutina

Ateleutina are atypical Cryptini that can be recognized by the combination of the following characters: head and mesosoma usually granulate or coriaceous; clypeus convex, slightly truncate or pointed at apex; mandibles short, lower tooth as long as or slightly longer than upper tooth; occipital carina dorsally absent, ventrally joining hypostomal carina just before or at base of mandible; epomia absent; posterior transverse carina of mesosternum complete; mesopleural fovea absent or represented by a weak impression far in front of mesopleural suture; sternaulus weak and fairly short, sometimes inconspicuous; submetapleural carina strong and complete; areo-

let distinctively large when delimited by unpigmented 3*rs-m* vein, receiving 2*m-cu* basal of its middle, otherwise open; ramulus absent; hind wing vein *M*+*Cu* strongly arched; hind tibiae and tarsi with numerous stout bristles; spiracle of first tergite at mid-length or somewhat anterior; apex of ovipositor sheath usually truncate and tip of ovipositor conspicuously elongate.

Key to the genera of Ateleutina

1 Clypeus apically truncate (Fig. 1A, arrow). Areolet wide, closed by an unpigmented vein 3*rs-m* (open in some males). Abscissa of Rs between 2*rs-m* and 3*rs-m*, and abscissa of *M* between 2*m-cu* and 3*rs-m*, long and parallel (Fig. 1B). ..... ***Ateleute*** **Förster, 1869**

– Clypeus projecting strongly downward and pointed at apex (Fig. 1C, arrow). Areolet always open, without any trace of vein 3*rs-m*. Distal abscissa of Rs beyond 2*rs-m* and distal abscissa of *M* beyond 2*m-cu*, divergent (Fig. 1D).... ..... ***Tamaulipeca*** **Kasparyan, 2000**

Key to the South American species of *Ateleute*

Females

1 Ovipositor sheath black, widely truncate at apex (Fig. 3A). Head transverse, 0.43 times as long as wide. Metasoma and hind femur vividly red (Fig. 2A). Antenna (except for a white band) black, with 34–35 flagellomeres. Large species, body length 7.4–7.5 mm, fore wing length 5.9–6.1 mm (Fig. 2A) ... . ***Ateleute ashaninka*** **sp. n.**

– Ovipositor sheath brown to light brown, moderately truncate or nearly pointed at apex (Figs 3B, C, D). Head less transverse, 0.48–0.51 times as long as wide. Metasoma and hind femur from yellow to orange or reddish brown (Figs 2B, C, D, E). Antenna (except for a white band) light brown to brown, with 28–32 flagellomeres. Smaller species than *A. ashaninka*, body length 3.8–5.9 mm, fore wing length 3.0–4.2 mm (Figs 2B, C, D, E)..... **2**

2 First tergite long, narrow, 2.16 times as long as wide posteriorly (Fig. 4A). Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} strongly inclivous, 0.90 times the length of Cu_{1b} (Fig. 5A) ..... ***Ateleute huaorani*** **sp. n.**

– First tergite wider and shorter than in *A. huaorani*, 1.50–1.77 times as long as wide posteriorly (Figs 4B, C, D). Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} moderately inclivous, 1.10–1.25 times the length of Cu_{1b} (Figs 5C, E, I).... **3**

3 Vein 2*rs-m* obliterated or 0.10 times length of abscissa of *M* between 2*rs-m* and 2*m-cu*. Vein 2*m-cu* vertical (Fig. 5C). Malar space about 0.65 times as long as basal width of mandible. ..... ***Ateleute kichua*** **sp. n.**

– Vein 2*rs-m* conspicuous, 0.40–0.55 times the length of abscissa of *M* between 2*rs-m* and 2*m-cu*. Vein 2*m-cu* inclivous (Figs 5E, I). Malar space about 0.80–0.86 times as long as basal width of mandible. **4**

4 Hind wing with distal abscissa of Cu_1 weak and unpigmented, Cu_1&*cu-a* fairly smoothly curved (Fig. 5G). Ovipositor sheath truncate at apex. First tergite about 1.50 times as long as maximum width (Fig. 4C). Small species, body length 3.8 mm, fore wing length 3 mm (Fig. 2D)...***Ateleute amarakaeri* sp. n.**

– Hind wing with distal abscissa of Cu_1 strong and pigmented, Cu_1&*cu-a* strongly angled below middle (Fig. 5K). Ovipositor sheath very slightly truncate at apex, nearly pointed (Fig. 3D). First tergite about 1.70–1.77 times as long as maximum width (Fig. 4D). Body length 5.2–5.6 mm, fore wing length 3.7–4.1 mm (Fig. 2E). .....***Ateleute shuar* sp. n.**

Males (male of *A. ashaninka* is unknown)

1 Claspers transversely and widely truncate (Fig. 6A). Vein 2*rs-m* obliterated (Fig. 5D). Hind femur with numerous conspicuous stout bristles (Fig. 7A) .. ..***Ateleute kichua* sp. n.**

– Claspers dorsally with an inwardly curved profile, so they are conspicuously pointed at apex (Figs 6B, C, D). Vein 2*rs-m* present (Figs 5B, F, J). Hind femur without or with sparse stout bristles (Figs 7B, C, D).....**2**

2 Claspers very narrow and pointed (Fig. 6B). Abscissa of Cu_1 between 1*m-cu* and Cu_{1a}, 1.00-1.20 times the length of Cu_{1b} (Fig. 5J)..***Ateleute shuar* sp. n.**

– Claspers moderately pointed (Figs 6C, D). Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} clearly shorter than Cu_{1b} (Figs 5B, F).....**3**

3 Hind wing with distal abscissa of Cu_1 present, Cu_1&*cu-a* angled below middle. Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} extremely inclivous, 0.45 times length of Cu_{1b} (Fig. 5B). Hind femur without stout bristles (Fig. 7C). Hind tibia with sparse stout bristles (Fig. 7C). Occipital carina entirely absent .... ***Ateleute huaorani* sp. n.**

– Hind wing with distal abscissa of Cu_1 absent, so that Cu_1&*cu-a* is fairly smoothly curved (Fig. 5H). Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} moderately inclivous, 0.77 times the length of Cu_{1b} (Fig. 5F). Hind femur with some stout bristles, principally on dorsal and ventral edge (Fig. 7D). Hind tibia with denser stout bristles (Fig. 7D). Occipital carina present ventrally .. ..***Ateleute amarakaeri* sp. n.**

Key to the South American species of *Tamaulipeca* (females only)

1 Mesoscutum and scutellum brown, with white V-shaped marks (Fig. 9A). Hind wing vein *cu-a* of about same length as abscissa of *Cu* between *M* and Cu_1 (Fig. 9H) ..... ***Tamaulipeca candoshi* sp. n.**

– Mesoscutum and scutellum reddish, without white V-shaped marks (Figs 9B, C). Hind wing vein *cu-a* shorter than abscissa of *Cu* between *M* and Cu_1 (Figs 9I, J) **2**

2 Face with broad white orbits (Fig. 9F). Metasoma with tergite 7 brown (Fig. 9B). ..... ***Tamaulipeca bora* sp. n.**

– Face without white orbits (Fig. 9G). Metasoma with tergite 7 white (Fig. 9C). ..... ***Tamaulipeca matses* sp. n.**

Descriptions of new species

Ateleute Förster, 1869

Ateleute Förster, 1869: 171. Type species: *Ateleute linearis* Förster
Talorga Cameron, 1911: 63 Type species: *Talorga spinipes* Cameron
Tsirirella Seyrig, 1952: 44 Type species: *Tsirirella tsiriria* Seyrig, designated by Townes and Gupta, 1961.
Psychostenus Uchida, 1955: 32. Type species: *Psychostenus minusculae* Uchida

Ateleute amarakaeri sp. n.

urn:lsid:zoobank.org:act:56072A09-2BC9-4FA4-A972-4B69F9A8C219
http://species-id.net/wiki/Ateleute_amarakaeri
Figs 2D, 4C, 5E–H, 6D, 7D, 8D

Material examined. Holotype: PERU, ♀, Dept. Madre de Dios, Los Amigos, 31-VII/7-VIII-2008, I. Gómez leg. a.s.l.: 233,4 m, Malaise T. 7, E: 381614.7, N:8610096.9 (UNSM). **Paratype: PERU,** 1 ♂, same locality, 5-12-VI-2008, I. Gómez leg. a.s.l.: 290m, Malaise T. 2, E: 380304.85, N: 8611305.81 (ZMUT).

Description. Female. Body length (without ovipositor) 3.8 mm, head length × width 0.4 × 0.9 mm, mesosoma length × width (mesoscutum) 1.3 × 0.5 mm, length of ovipositor sheath 0.8 mm, fore wing length 3.0 mm, flagellum 4.5 mm.

Head. Transverse, 0.48 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna with 28 flagellomeres; flagellum longer than body, 1.50 times as long as fore wing (Fig. 2D); its segments 1, 4, 7 and 12 about 9.50 (annellus excluded), 7.50, 2.57 and 1.42 times as long as wide, respectively; basal flagellar segments 1 to 4 slightly compressed, flagellomeres 5 to 9 cylindrical and from 10 to near apex depressed (flattened ventrally with short sensory setae in this area); maximum width of flagellum 2.33 times minimum width of first flagellomere; flagellum strongly tapered towards apex. Clypeus strongly convex, its margin sharp, slightly truncate in centre. Mandible short, 1.66 times as long as width at middle, teeth equal, base swollen. Malar space about 0.83 times as long as basal width of mandible. Occipital carina absent dorsally, ventrally joining hypostomal carina just be-

fore mandible. Ocellar-ocular distance and distance between hind ocelli 1.33 and 1.66 times maximum diameter of lateral ocellus, respectively. Face finely coriaceous, with silvery short hairs. Frons coriaceous. Vertex slightly coriaceous, with very sparse short hairs, lower vertex and occiput strongly concave centrally. Gena shiny, slightly coriaceous, hairless in upper half, with moderately long and dense silvery hairs in lower part.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar bordered behind by weak carina. Pronotum coriaceous. Mesoscutum coriaceous, shiny. Notauli reaching tegula level, convergent, strongly impressed. Prescutellar groove without longitudinal wrinkles. Scutellum coriaceous, with complete lateral carinae. Mesopleuron coriaceous, with very fine and dense punctures and white hairs; these hairs usually absent in an antero-posterior diagonal band including speculum. Mesopleural fovea represented by a weak impression far in front of mesopleural suture. Sternaulus as a weak and short anterior depression. Metapleuron and propodeum finely and very densely punctate or rugulose-punctate on a coriaceous background, with very dense whitish hairs. Posterior transverse carina of mesosternum evanescent laterally. Propodeum 1.14 times as long as wide at spiracle level (dorsally measured), with a narrow longitudinal central depression; its spiracle rounded and very small, close to pleural carina. Anterior transverse carina absent. Posterior transverse carina present in centre and in area posteroexterna, absent laterally. Median longitudinal carinae faintly outlined; lateral longitudinal carina absent anterior to apical transverse carina, shortly present distad. Pleural carina strong. Area petiolaris confluent with areas posteroexterna. Vein 3*rs-m* unpigmented. Vein 2*rs-m* conspicuous, 0.40 times length of abscissa of *M* between 2*rs-m* and 2*m-cu*. Vein 2*m-cu* inclivous with one short bulla. *Cu-a* of fore wing a little distad of Rs&M, inclivous. Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, forming angle of 150° with Cu_1, 1.25 times length of Cu_{1b} (Fig. 5E). *M*+*Cu* of hind wing strongly arched. Hind wing vein *cu-a* clearly shorter than abscissa of *Cu* between *M* and Cu_1. Hind wing with distal abscissa of Cu_1 weak and unpigmented, so that Cu_1&*cu-a* is fairly smoothly curved (Fig. 5G). Distal abscissa of 1*A* of hind wing very short, nearly absent. Tip of axillus very close to anal margin. Tibiae and tarsi with sparse stout bristles, stronger and denser on hind leg. Hind femur with some isolated stout bristles on ventral and dorsal edge.

Metasoma. First tergite smooth and polished, about 1.50 times as long as maximum width (Fig. 4C); its maximum width at apex about 3.27 times minimum width (at base). Median dorsal and dorsolateral carinae of first tergite absent, ventrolateral carinae more or less distinct. Spiracle at anterior 0.42 of first tergite. Tergite 2 0.86 times as long as maximum width, smooth and shiny, with short and very sparse hairs; tergites 3-8 slightly coriaceous, rather densely pubescent. Thyridium transverse, as short, inconspicuous, impressed and granulate depression. Ovipositor sheath 0.52 times as long as hind tibia, truncate at apex. Ovipositor moderately slender and slightly down curved, its tip elongate lanceolate, nodus weak, its lower valve with three inconspicuous lateral ridges at apex.

Coloration (Fig. 2D). Head and mesosoma black; hind coxa, trochantellus, femur and tibia, metasoma and ovipositor, reddish-brown. Base of mandible and teeth,

flagellum, dorsal basal part of first tergite and distal tarsomeres, brown. Band on flagellomeres 5–11, palpi, front and mid coxa, trochanter and trochantellus and tegula, white. Central part of mandible scapus and pedicel below, fore and mid femora, tibiae and tarsi, and hind trochanter and tarsus (except distal tarsomere), yellow. Ovipositor sheath brownish.

Male. Body length 3.5 mm, head length × width 0.3 × 0.6 mm, mesosoma length × width (mesoscutum) 1.1 × 0.5 mm, fore wing length 2.9 mm, flagellum 4.0 mm.

Head. Transverse, 0.57 times as long as wide, strongly narrowed behind eyes, gena slightly rounded (dorsal view). Antenna with 26 flagellomeres; flagellum filiform, longer than body, 1.39 times as long as fore wing (Fig. 8D); basal half of flagellum slightly compressed. Mandible 1.83 times as long as its width at middle, teeth equal, base strongly swollen. Malar space about 0.44 times as long as basal width of mandible. Occipital carina absent dorsally, ventrally joining hypostomal carina just before mandible. Ocellar-ocular distance and distance between hind ocelli 1.00 and 1.37 times maximum diameter of lateral ocellus, respectively. Vertex slightly coriaceous, elevated above eye level, abruptly folded behind hind ocelli in a vertical lower vertex, lower vertex and occiput smooth and shiny, deeply concave centrally.

Mesosoma. Pronotum slightly coriaceous, shortly longitudinally strigose on lower hind corner. Prescutelar groove with weak longitudinal wrinkles. Whitish hairs of metapleuron and propodeum shorter. Mesopleural fovea represented by a weak impression far in front of mesopleural suture. Sternaulus virtually absent. Metapleuron punctate or rugulose-punctate on a slightly coriaceous background, with short whitish hairs. Median longitudinal carinae of propodeum absent, anterior to apical transverse carina replaced by a longitudinal narrow depression. Vein *2rs-m* 0.30 times length of abscissa of *M* between *2rs-m* and *2m-cu*. *Cu-a* of fore wing clearly distal to *Rs&M*. Abscissa of Cu_1 between *1m-cu* and Cu_{1a} inclivous, forming angle of 150° with Cu_1, 0.77 times length of Cu_{1b} (Fig. 5F). Hind wing with distal abscissa of Cu_1 absent so that Cu_1&*cu-a* is fairly smoothly curved (Fig. 5H). Distal abscissa of *1A* of hind wing absent (Fig. 5H). Hind femur with some sparse stout bristles on dorsal and ventral edge (Fig. 7D). Hind tibia with dense stout bristles.

Metasoma. First tergite smooth and polished, about 2.39 times as long as maximum width, laterally with isolated short silvery hairs; maximum width at apex about 1.90 times minimum width (at base). Median dorsal carinae of first tergite absent, dorsolateral carinae shortly present at base, ventrolateral carinae slightly distinct posteriorly. Spiracle at anterior 0.30–0.40 of tergite. Tergite 2 shiny, coriaceous, with short and very sparse hairs laterally. Thyridium weak, as a granulate, small and transverse depression. Claspers with an inwardly curved profile dorsally, moderately pointed at apex (Fig. 6D).

Coloration (Fig. 8D). Head, mesosoma, first tergite and hind coxa, black; mandibles (except base and teeth), palpi, front and middle legs (except tarsi), yellow. Scapus, pedicel, fore and mid tarsi, light brown. Antenna, base and teeth of mandibles, metasoma from second tergite, hind trochanter and trochantellus, tibia and tarsus, dark brown. Hind femur orange.

Taxonomic discussion. Females differ from *A. carolina* Townes, 1967, *A. grossa* Kasparyan & Hernández, 2000 and *A. tinctoria* Kasparyan & Hernández, 2000 by their coloration: head and mesosoma black and metasoma mostly reddish-brown. They differ from other South American species by the head being 0.48 times as long as wide; ovipositor sheath brownish, truncate at apex; antenna (except white ring) brown, with 28 flagellomeres; first tergite about 1.50 times as long as maximum width; abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, 1.25 times the length of Cu_{1b}; vein 2*rs-m* conspicuous, 0.40 times length of abscissa of *M* between 2*rs-m* and 2*m-cu*; vein 2*m-cu* inclivous; malar space about 0.83 times as long as basal width of mandible; hind wing with distal abscissa of Cu_1 weak and unpigmented, so that Cu_1&*cu-a* is fairly smoothly curved; and by their small body size, 3.8 mm. Males can be recognized by the claspers, which have an inward curved profile dorsally, moderately pointed at apex; hind femur with some sparse stout bristles, principally on dorsal and ventral edge; hind tibia with dense stout bristles; occipital carina present ventrally; abscissa of Cu_1 between 1*m-cu* and Cu_{1a} moderately inclivous, 0.77 times length of Cu_{1b} and hind wing with distal abscissa of Cu_1 absent, so that Cu_1&*cu-a* is fairly smoothly curved.

Remarks. We have linked males and females of this species using the following characters: vein 2*rs-m* conspicuous, 0.30–0.40 times the length of abscissa of *M* between 2*rs-m* and 2*m-cu*; abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, forming an angle of about 150° with Cu_1, 1.25 and 0.77 times length of Cu_{1b}, in female (Fig. 5E) and male (Fig. 5F), respectively, and hind wing with distal abscissa of Cu_1 weak and unpigmented, so that Cu_1&*cu-a* is fairly smoothly curved (Figs 5G, H). These characters in combination differ from those of other South American species. Additionally, both male and female have been collected in the same locality, Los Amigos, Madre de Dios (Peru). The specimens were also collected during the same period of time.

Etymology. This species is dedicated to the Peruvian Amarakaeri people, who live in the Department of Madre de Dios, Peru.

Phenology. Adults fly in June-August.

Distribution. Peru.

Habitat. Madre de Dios. Tropical rain forest. The study site is located near the Manu National Park. The average annual precipitation at the site ranges from 2,700 to 3,000 mm and the mean annual temperature is around 23 C°. The species was found by Isrrael Gómez.

***Ateleute ashaninka* sp. n.**
urn:lsid:zoobank.org:act:8FE77420-0344-4B43-87C3-EDCD9460B05C
http://species-id.net/wiki/Ateleute_ashaninka
Figs 1A, 2A, 3A

Material examined. Holotype: PERU, ♀, Junín, Chanchamayo, Fundo Génova, 5–19.V.2008, Malaise Trap 2 (MEKRB, currently on loan in CEUA). **Paratypes: PERU,** 2 ♀♀, same locality, 05–19.IV.2008, Malaise Trap 4 (1 ♀, ZMUT; 1 ♀, CEUA).

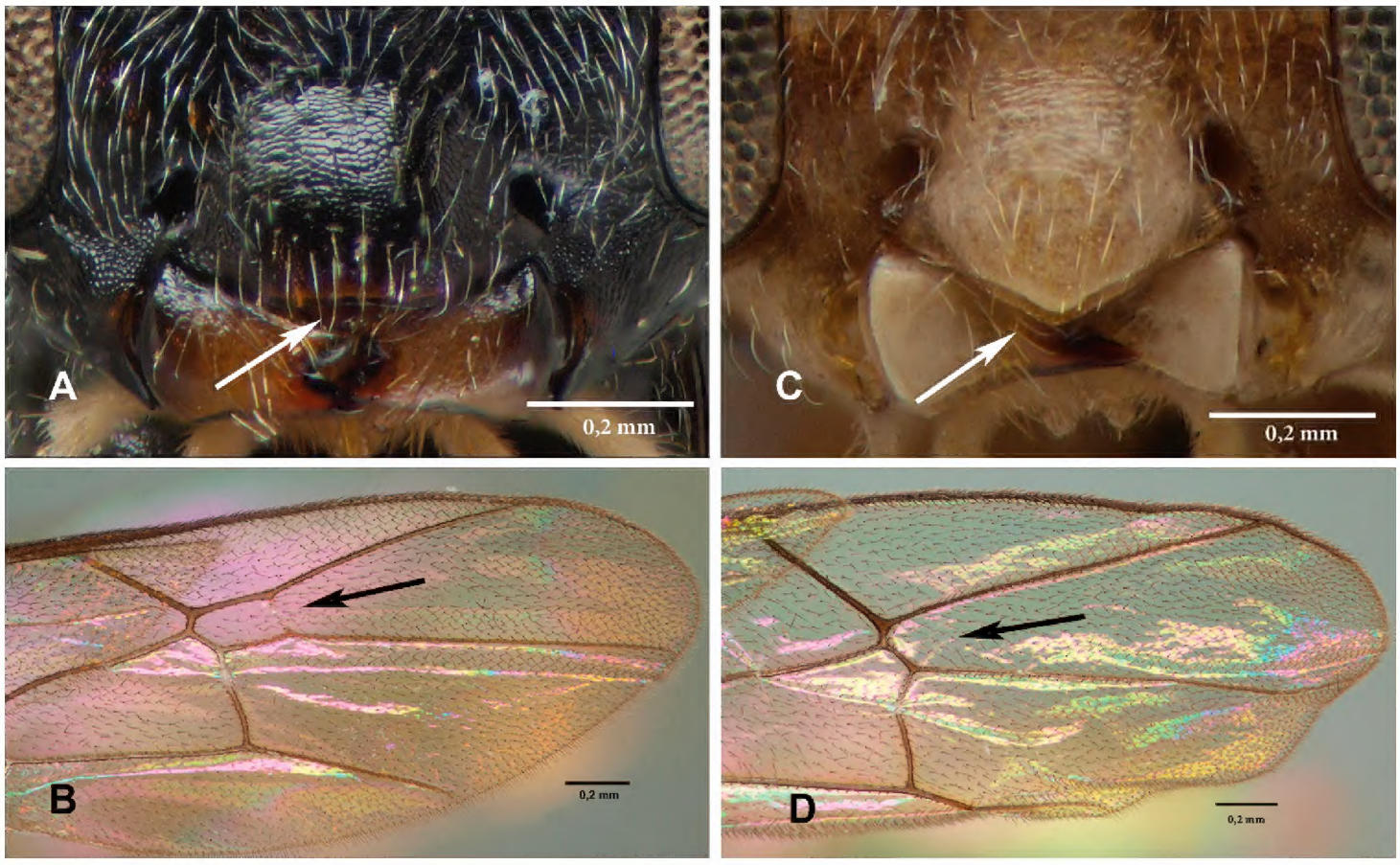

Figure 1. *Ateleute* (**A–B**): **A** clypeus (*A. ashaninka*) **B** fore wing of *A. shuar* showing areolet (arrow). *Tamaulipeca* (**C–D**) **C** clypeus (*T. bora*) **D** fore wing of *T. bora* showing areolet (arrow).

Description. Female. Body length (without ovipositor) 7.4–7.5 mm, head length × width 0.6–0.7 × 1.5–1.6 mm, mesosoma length × width (mesoscutum) 2.6 × 0.9–1.0 mm, length of ovipositor sheath 2.0–2.1 mm, fore wing length 5.9–6.1 mm, flagellum 9.2–9.3 mm.

Head. Transverse, 0.43 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna with 34–35 flagellomeres; flagellum longer than body, 1.47–1.55 times as long as fore wing (Fig. 2A); its segments 1, 4, 7 and 12 about 7.70, 5.00–5.60, 1.90–1.94 and 1.10 times as long as wide, respectively; basal flagellar segments 1 to 4 slightly compressed, flagellomeres 5 to 9–10 cylindrical, and from 11 to near apex depressed (flattened ventrally with short sensory setae in this area); maximum width of flagellum about 1.10 times the minimum width of segment 1; flagellum strongly tapered towards apex (Fig. 2A). Clypeus strongly convex, its margin sharp slightly truncate in centre (Fig. 1A). Mandible short, 2.30 as long as its width at middle, teeth equal or the lower tooth a little longer, base strongly swollen. Malar space about 0.80–0.90 times as long as basal width of mandible. Occipital carina absent dorsally, ventrally joining hypostomal carina just before mandible. Ocellar-ocular distance and distance between hind ocelli 1.16–1.25 and 1.40–1.50 times maximum diameter of lateral ocellus, respectively. Face coriaceous, with close, distinct but shallow punctures centrally and moderately long silvery hairs. Frons coriaceous. Vertex slightly coriaceous, with very sparse short hairs, lower vertex and occiput strongly concave; gena smooth and shiny, hairless in upper half, with moderately long and dense silvery hairs in lower part.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar bordered behind by carina. Pronotum slightly coriaceous, laterally longitudinally strigose with

sparse silvery hairs. Mesoscutum coriaceous, shiny, longitudinally strigose in the area between posterior part of notauli. Notauli reaching tegula level, convergent, strongly impressed with tight transverse wrinkles along its length. Prescutelar groove with longitudinal wrinkles. Scutellum weakly coriaceous, with complete lateral carina. Mesopleuron coriaceous, with very dense punctures and white long hairs; these hairs absent in an antero-posterior diagonal band that includes speculum. Mesopleural fovea absent or represented by a weak impression far in front of mesopleural suture. Sternaulus nearly absent. Metapleuron and propodeum finely and densely punctate or rugose-punctate on a coriaceous background, with very dense and long whitish hairs. Posterior transverse carina of mesosternum complete (not interrupted in-front of each middle coxa). Propodeum long, its spiracle round and very small. Anterior transverse carina absent. Posterior transverse carina present in the centre and in area posteroexterna, absent laterally. Median longitudinal carinae of propodeum slightly distinct anterior to transverse carina; lateral longitudinal carina absent anterior to apical transverse carina, shortly present distad. Pleural carina strong, sometimes evanescent posteriorly. Area petiolaris confluent with areas posteroexterna. Vein *3rs-m* un-pigmented. Vein *2rs-m* 0.3 times length of abscissa of *M* between *2rs-m* and *2m-cu*. Vein *2m-cu* vertical with one short bulla. *Cu-a* of fore wing a little distad of *Rs*&*M*. *M*+*Cu* of hind wing strongly arched. Hind wing with distal abscissa of Cu_1 strong and pigmented. Cu_1&*cu-a* strongly angled a little below middle. Distal abscissa of 1*A* of hind wing very short, nearly absent. Tip of axillus very close to-anal margin. Tibiae and tarsi with sparse stout bristle, stronger on hind leg. Hind femur with 3-4 stout bristles on ventral (1-2) and dorsal (2) edge.

Metasoma. First tergite smooth and polished about 1.70–1.80 times as long as maximum width; its maximum width at apex about 3.30 times minimum width (at base). Median dorsal and dorsolateral carinae of first tergite absent, ventrolateral carinae more or less distinct posteriorly. Spiracle at anterior 0.30–0.40 of tergite. Tergites 2 square, polished, slightly coriaceous, laterally with short, sparse hairs; tergites 3-8 rather densely pubescent. Thyridium absent. Ovipositor sheath 0.62–0.66 times as long as hind tibia, widely truncate at apex (Fig. 3A). Ovipositor moderately slender and slightly down curved (Fig. 2A), its tip elongate lanceolate, nodus weak, its lower valve with three weak lateral ridges at apex.

Coloration (Fig. 2A). Head and mesosoma black, metasoma entirely, hind coxa, trochanter, trochantellus and femur, and ovipositor, vividly red. Mandible except base and teeth and scapus below, reddish brown. Band on flagellomeres 5–11 and tegula white. Fore, mid leg, hind tibia and tarsus (except distal tarsomere), yellow. All distal tarsomeres brown. Palpi, fore coxa, fore and mid trochanter and tochantelli, light yellow. Ovipositor sheath black.

Male. Unknown.

Taxonomic discussion. This species differs from all other New World species by its coloration: head and mesosoma entirely black, and metasoma, hind coxa, trochanter, trochantellus, femur and tibia entirely red. The North American and Mesoamerican species *A. carolina*, *A. grossa* and *A. tinctoria* all have black and white patterns on the mesosoma and/or metasoma. *Ateleute ashaninka* also differs from other South Ameri-

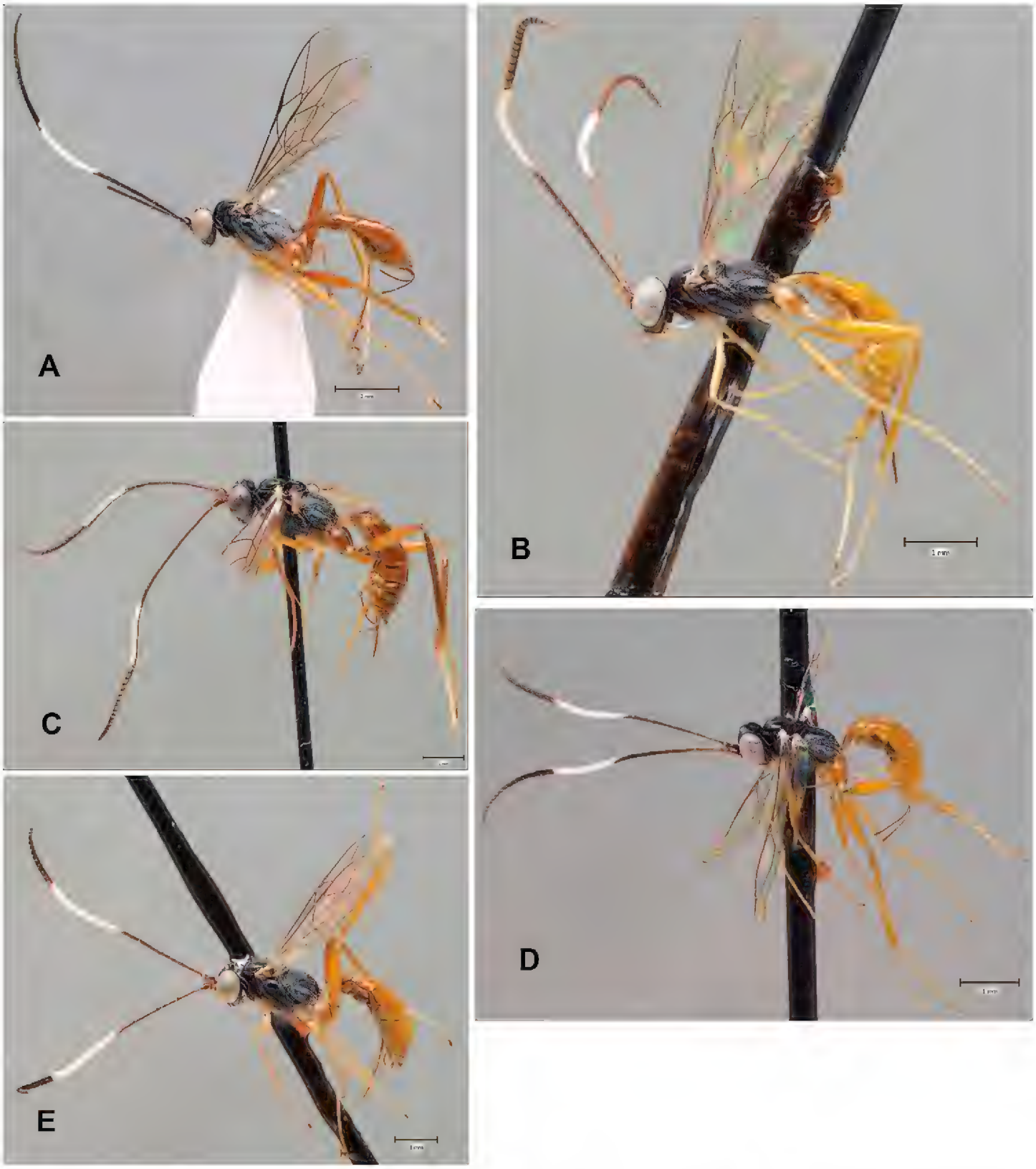

Figure 2. Female habitus, lateral: **A** *Ateleute ashaninka* sp. n. (paratype) **B** *Ateleute huaorani* sp. n. (holotype) **C** *Ateleute kichua* sp. n. (holotype) **D** *Ateleute amarakaeri* sp. n. (holotype) **E** *Ateleute shuar* sp. n. (holotype)

can species by its widely truncate black ovipositor sheath, more transverse head longer black antennae with 34–35 flagellomeres; and a larger body size.

Etymology. This species is dedicated to the Peruvian Amazonian Ashaninka people, who live in the province of Chanchamayo, where the specimens were collected.

Phenology. Adults fly in April-May.

Distribution. Peru.

Habitat. The species was collected in a premontane rain forest area strongly perturbed by traditional agricultural activities represented by small *Inga*-shaded coffee

plantations and maize and citrus cultivations. Large areas of the forest have been cut down, making way for the formation of secondary forest, grassland and degraded areas, but there are still some areas of primary forest left, due to their inaccessibility, selective extraction and policies of their owners. For more information on the vegetation and climate see Alvarado et al. (2011).

***Ateleute huaorani* sp. n.**
urn:lsid:zoobank.org:act:04425CF6-9D21-448A-B969-6391BC4CA653
http://species-id.net/wiki/Ateleute_huaorani
Figs 2B, 3B, 4A, 5A–B, 6C, 7C, 8C

Material examined. Holotype: **ECUADOR,** ♀, Dept. Orellana, Onkone Gare, 0°39'25.7"S, 76°27'10.8"W, Canopy fogging, 216.3 m., 1.X.1996, T. L. Erwin et al. Lot.1686 (USNM).

Paratypes: ECUADOR, 1 ♂, Dept. Orellana, Tiputini, 0°37'55.7"S, 76°8'39"W, Canopy fogging, 220–250 m., 6.II.1999, T. L. Erwin et al. Lot.2068 (ZMUT).

Description. Female. Body length (without ovipositor) 4.6 mm, head length × width 0.5 × 0.9 mm, mesosoma length × width (mesoscutum) 1.4 × 0.5 mm, length of ovipositor sheath 1.1 mm, fore wing length 3.3 mm, flagellum 5.6 mm.

Head. Transverse, 0.50 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna with 29 flagellomeres; flagellum longer than body, 1.70 times as long as fore wing (Fig. 2B); its segments 1, 4, 7 and 12 about 9.40, 7.20, 2.36 and 1.16 times as long as wide, respectively; basal flagellar segments 1 to 4 slightly compressed, flagellomeres 5 to 8 cylindrical and from 9 to near apex depressed (flattened ventrally with short sensory setae in this area); maximum width of flagellum about 1.10 times minimum width of segment 1; flagellum strongly tapered towards apex. Clypeus strongly convex, its margin sharp slightly truncate in centre. Mandible short, 2.50 times as long as its width at middle, its teeth equal, base strongly swollen. Malar space about 0.66 times as long as basal width of mandible. Occipital carina absent dorsally, ventrally joining hypostomal carina just little before mandible. Ocellar-ocular distance and distance between hind ocelli 0.90 times maximum diameter of lateral ocellus. Face coriaceous, with c1ose, but shallow punctures and moderately long silvery hairs. Frons coriaceous. Vertex slightly coriaceous, with very sparse short hairs, lower vertex and occiput strongly concave centrally; gena smooth and shiny, or slightly coriaceous, hairless in upper half, with sparse silvery hairs in lower part.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar bordered behind by weak carina. Pronotum coriaceous, laterally shortly longitudinally strigose. Mesoscumum coriaceous, shiny. Notauli reaching tegula level, convergent, strongly impressed. Prescutelar groove with very weak longitudinal wrinkles. Scutellum coriaceous, with complete lateral carinae. Mesopleuron coriaceous, with very fine and dense punctures and white long hairs; these hairs absent in an antero-posterior diagonal band including speculum. Mesopleural fovea absent. Sternaulus evanescent.

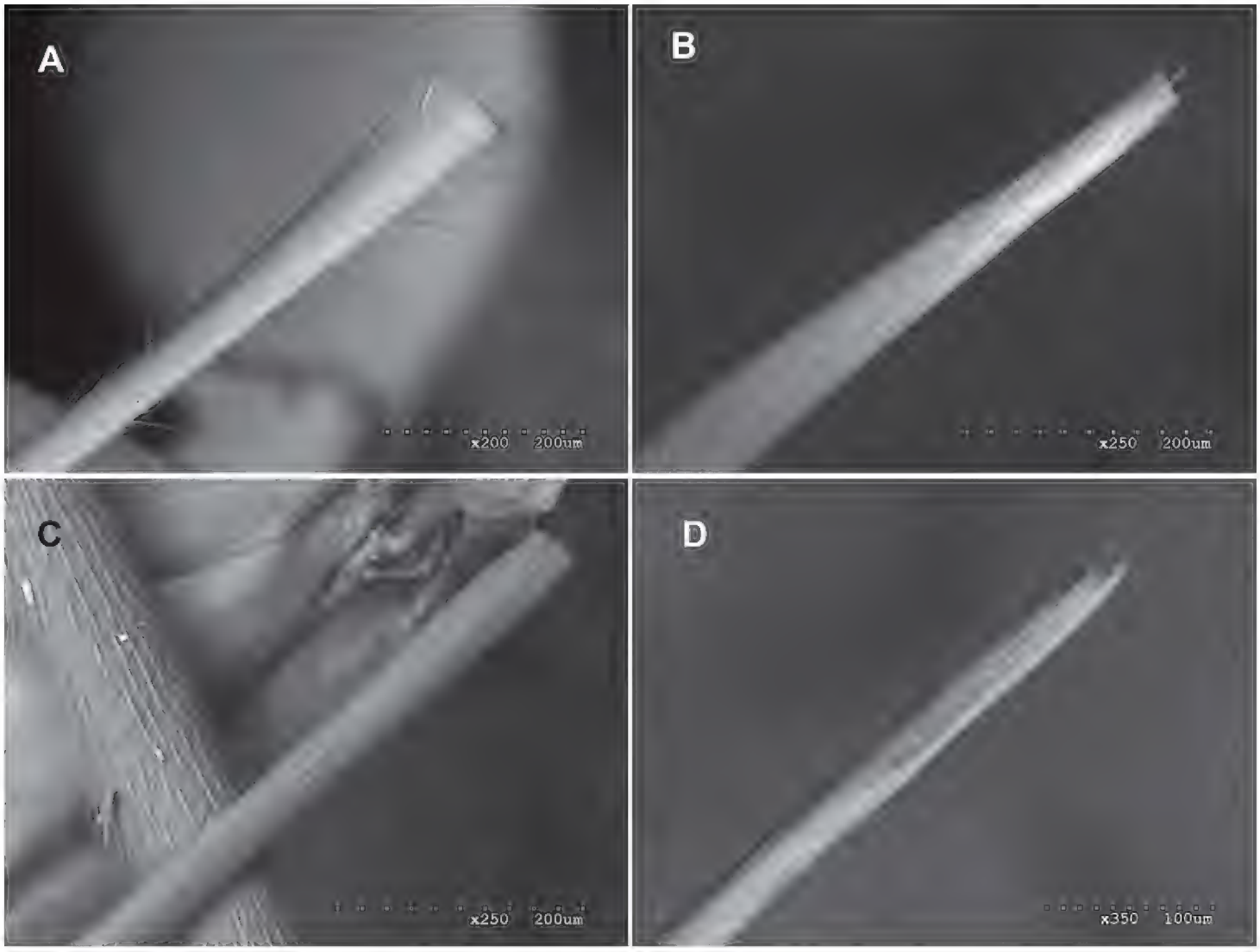

Figure 3. Ovipositor sheath: **A** *Ateleute ashaninka* sp. n. **B** *Ateleute huaorani* sp. n. **C** *Ateleute kichua* sp. n. **D** *Ateleute shuar* sp. n.

Metapleuron and propodeum fine and very densely punctate or rugulose-punctate on a coriaceous background, with very dense whitish hairs. Posterior transverse carina of mesosternum complete (not interrupted in-front of each middle coxa). Propodeum long, with a narrow longitudinal central depression; its spiracle rounded and very small, close to pleural carina. Anterior transverse carina absent. Posterior transverse carina present in the centre and in area posteroexterna, absent laterally. Median longitudinal carinae absent; lateral longitudinal carina absent anterior to apical transverse carina, shortly present distad. Pleural carina strong. Area petiolaris confluent with areas posteroexterna. Vein *3rs-m* unpigmented. Vein *2rs-m* conspicuous, 0.60 times the length of abscissa of *M* between *2rs-m* and *2m-cu*. Vein *2m-cu* slightly inclivous with one bulla. *Cu-a* of fore wing a little distad of *Rs&M*, slightly inclivous. Abscissa of Cu_1 between *1m-cu* and Cu_{1a} strongly inclivous, forming angle of 156° with Cu_1, 0.90 times length of Cu_{1b}. *M+Cu* of hind wing strongly arched (Fig. 5A). Hind wing with distal abscissa of Cu_1 pigmented. Cu_1*&cu-a* angled below middle. Distal abscissa of *1A* of hind wing very short, nearly absent. Tip of axillus very close to anal margin. Tibiae and tarsi with sparse stout bristles, longer and denser on hind leg. Hind femur without stout bristles.

Metasoma. First tergite smooth and polished, about 2.16 times as long as maximum width (Fig. 4A); its maximum width at apex about 2.85 times minimum width

(at base). Median dorsal carina of first tergite absent, dorsolateral carinae slightly present at basal half, the ventrolateral carinae more or less distinct. Spiracle at anterior 0.43 of tergite. Tergite 2 0.90 times as long as maximum width, shiny, slightly coriaceous, laterally with short and sparse hairs; tergites 3-8 rather densely pubescent. Thyridium absent. Ovipositor sheath 0.58 times as long as hind tibia, narrowly truncate at apex (Fig. 3B). Ovipositor moderately slender and slightly down curved (Fig. 2B), its tip elongate lanceolate, nodus weak.

Coloration (Fig. 2B). Head and mesosoma black; central part of mandibles, scapus and pedicel below, front and mid femur, apex of hind trochanter, hind femur and tibia entirely, metasoma except 3/4 of first tergite yellowish. Base of mandible and teeth, flagellum and dorsal central part of first tergite, propleura, front lateral part of pronotum and mesopleura, apex of hind coxa and hind trochantellus dorsally and distal tarsomeres of all legs brown. Ovipositor sheath brownish. Band on flagellomeres 5–12, palpi, front and mid coxa, trochanter and trochantellus and tegula, white. Fore and mid femora ventrally, tibiae and tarsi, base of hind coxa and trochanter, tarsus and base of first tergite, light yellow.

Male. Body length 3.5 mm, head length × width 0.3 × 0.6 mm, mesosoma length × width (mesoscutum) 1.0 × 0.4 mm, fore wing length 2.5 mm, flagellum 3.6 mm.

Head. Transverse, 0.56 times as long as wide, strongly narrowed behind eyes, gena slightly rounded (dorsal view). Antenna thin, filiform with 23 flagellomeres; flagellum longer than body, 1.41 times as long as fore wing (Fig. 8C), measures of flagellomeres different; basal half of flagellum slightly compressed. Mandible 2.50 as long as its width at middle. Malar space about 0.44 times as long as basal width of mandible. Occipital carina absent. Ocellar-ocular distance and distance between hind ocelli 1.20 and 1.00 times maximum diameter of lateral ocellus, respectively. Vertex slightly coriaceous, elevated above the eye level, abruptly folded behind hind ocelli in a vertical lower vertex, lower vertex and occiput smooth and shiny, slightly concave in the centre.

Mesosoma. Pronotum coriaceous. Mesopleuron coriaceous with short and sparse white hairs. Sternaulus slightly impressed anteriorly. Metapleuron and propodeum coriaceous with very sparse short whitish hairs. Vein *2rs-m* conspicuous, 0.50 times the length of abscissa of *M* between *2rs-m* and *2m-cu*. Abscissa of Cu_1 between *1m-cu* and Cu_{1a} extremely inclivous, forming angle of 166° with Cu_1, 0.45 times length of Cu_{1b} (Fig. 5B). Hind wing with distal abscissa of Cu_1 pigmented. Cu_1&*cu-a* angled below middle. Distal abscissa of *1A* of hind wing absent. Front and middle tibiae and tarsi, and hind femur (Fig. 7C) without conspicuous stout bristles. Hind tibia with sparse stout bristles.

Metasoma. First tergite coriaceous about 2.00 times as long as maximum width; maximum width at apex about 2.20 times minimum width (at base). Median dorsal carinae of first tergite absent, dorsolateral carina present anterior spiracle, the ventrolateral carinae more or less distinct posteriorly. Spiracle at anterior 0.45 of tergite. Thyridium weak, as a granulate, small and transverse depression. Claspers with an inwardly curved profile dorsally, moderately pointed at apex (Fig. 6C).

Coloration (Fig. 8C). Body brown; mandibles (except teeth), all legs except coxae, trochantelli and distal tarsomeres yellow. Scapus and pedicel light brown.

Figure 4. Metasomal first tergite, female, dorsal: **A** *Ateleute huaorani* sp. n. **B** *Ateleute kichua* sp. n. **C** *Ateleute amarakaeri* sp. n. **D** *Ateleute shuar* sp. n.

Taxonomic discussion. Females differ from *A. carolina, A. grossa* and *A. tinctoria* by their coloration: head and mesosoma entirely black or dark brown and metasoma mostly yellowish. They also differ from other South American species by their brownish ovipositor sheath which are narrowly truncate in the apex; head 0.50 times as long as wide; first tergite long and narrow, 2.16 times as long as wide posteriorly; antenna brown with 29 flagellomeres; and abscissa of Cu_1 between 1*m-cu* and Cu_{1a} strongly inclivous, about 0.90 times the length of Cu_{1b}. Males can be recognized by their claspers, which have an inwardly curved profile dorsally, moderately pointed at apex; hind femur without stout bristles; hind tibia with sparse stout bristles; abscissa of Cu_1 between 1*m-cu* and Cu_{1a}, extremely inclivous, 0.45 times length of Cu_{1b}; vein 2*rs-m* 0.50 times the length of abscissa of *M* between 2*rs-m* and 2*m-cu*; hind wing with distal abscissa of Cu_1 present; Cu_1&*cu-a* angled below middle; and the occipital carina absent.

Remarks. We have linked males and females of this species using the following characters: vein 2*rs-m* conspicuous, 0.60 times in female (Fig. 5A) and 0.50 times in male (Fig. 5B) the length of abscissa of *M* between 2*rs-m* and 2*m-cu*, and abscissa of Cu_1 between 1*m-cu* and Cu_{1a} strongly inclivous, 0.90 times in female (Fig. 5A) and 0.45 times in male (Fig. 5B) length of $Cu_{1b,}$ and forming an angle about 156°-166° with Cu_1 (Figs 5A, B). These characters in combination differ from those of other South American species.

Etymology. This species is dedicated to the Ecuadorian Huaorani people, who live in the Department of Orellana, Ecuador.

Phenology. Adults fly in October and February.

Distribution. Ecuador

Habitat. The holotype has been collected by canopy fogging in Onkone Gare, Department of Orellana, Ecuador (by Terry L. Erwin). The study site is located near the border of the Yasuní National Park. Vegetation at the site is old and diverse primary rain forest growing on relatively nutrient-rich soils.

***Ateleute kichua* sp. n.**
urn:lsid:zoobank.org:act:06492E74-195C-430A-8986-913E8F92ED2D
http://species-id.net/wiki/Ateleute_kichua
Figs 2C, 3C, 4B, 5C–D, 6A, 7A, 8A

Material examined. Holotype: **ECUADOR,** ♀, Dept. Orellana, Onkone Gare, 0°39'25.7"S, 76°27'10.8"W, Canopy fogging, 216.3 m., 30.IX.1996, T. L. Erwin et al. Lot.1677 (USNM).

Paratypes: ECUADOR, 1 ♂, same locality, 21-V-1994, T. L. Erwin et al. Lot.702; 1 ♂, same locality, 2-VI-1995, T. L. Erwin et al. Lot.1084; 1 ♂, same locality, 8-X-1995, T. L. Erwin et al. Lot.1268 (2 ♂ in USNM and 1 ♂ in ZMUT).

Description. Female. Body length (without ovipositor) 5.9 mm, head length × width 0.6 × 1.2 mm, mesosoma length × width (mesoscutum) 2.0 × 0.8 mm, length of ovipositor sheath 1.3 mm, fore wing length 4.2 mm, flagellum 6.2 mm.

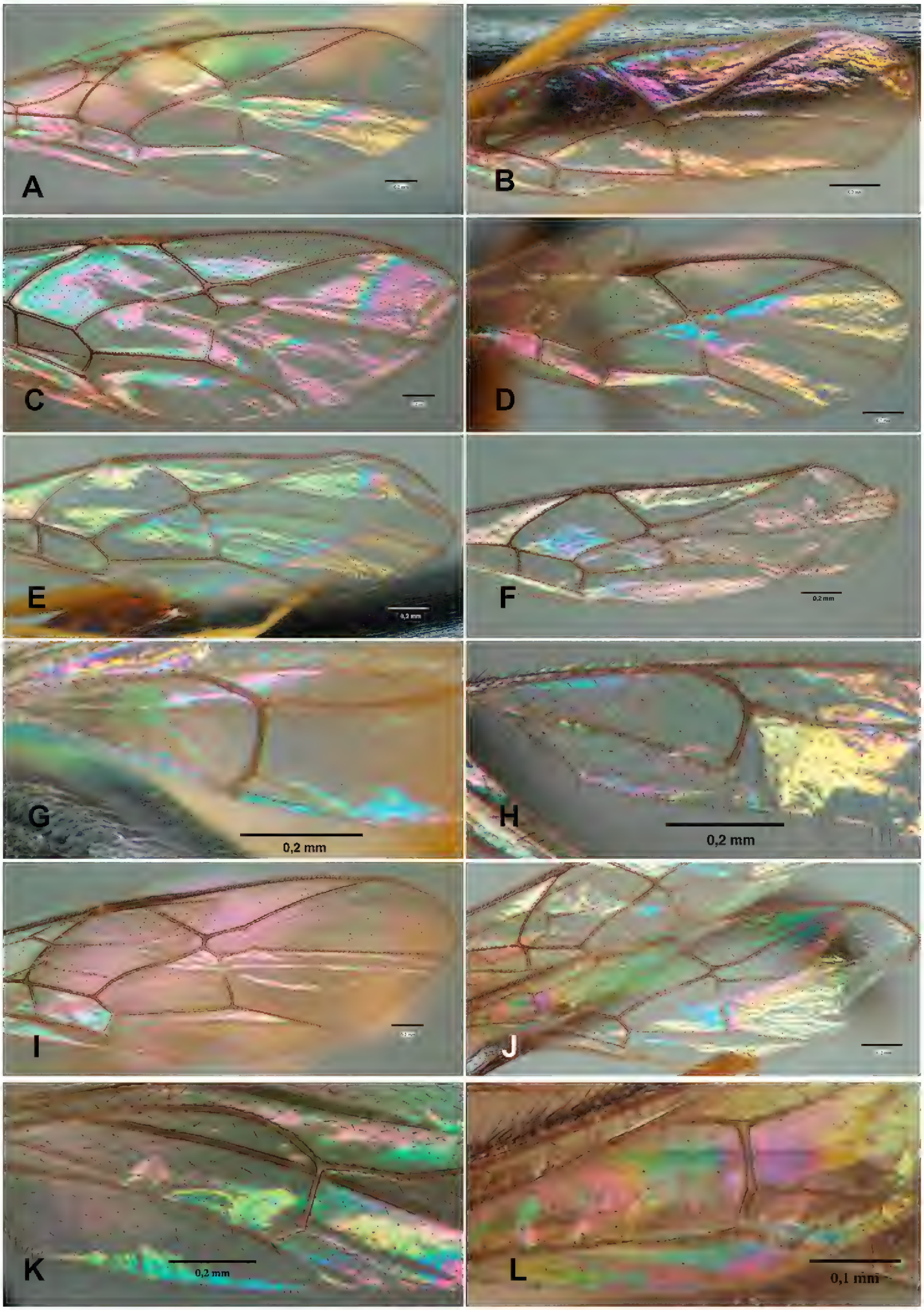

Figure 5. Wings: **A** *Ateleute huaorani* sp. n., fore wing, ♀ **B** *Ateleute huaorani* sp. n., fore wing, ♂ **C** *Ateleute kichua* sp. n., fore wing, ♀ **D** *Ateleute kichua* sp. n., fore wing, ♂ **E** *Ateleute amarakaeri* sp. n., fore wing, ♀ **F** *Ateleute amarakaeri* sp. n., fore wing, ♂ **G** *Ateleute amarakaeri* sp. n., hind wing, ♀ **H** *Ateleute amarakaeri* sp. n., hind wing, ♂ **I** *Ateleute shuar* sp. n., fore wing, ♀ **J** *Ateleute shuar* sp. n., fore wing, ♂ **K** *Ateleute shuar* sp. n., hind wing, ♀ **L** *Ateleute shuar* sp. n., hind wing, ♂.

Head. Transverse, 0.48 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna with 30 flagellomeres; flagellum longer than body, 1.49 times as long as fore wing (Fig. 2C); its segments 1, 4, 7 and 12 about 9.57, 6.25, 2.50 and 1.20 times as long as wide, respectively; basal flagellar segments 1 to 4 slightly compressed, flagellomeres 5 to 9 cylindrical and from 10 to near apex depressed (flattened ventrally with short sensory setae in this area); maximum width of flagellum about twice minimum width of first flagellomere; flagellum strongly tapered towards apex. Clypeus strongly convex, its margin sharp slightly truncate in centre. Mandible 2.27 times as long as width at middle, teeth equal or lower tooth little longer, base strongly swollen. Malar space about 0.65 times as long as basal width of mandible. Occipital carina absent dorsally, ventrally joining hypostomal carina just before mandible. Ocellar-ocular distance and distance between hind ocelli 1.10 and 1.30 times maximum diameter of lateral ocellus, respectively. Face finely coriaceous, dense and finely punctate, with silvery hairs. Frons and vertex coriaceous, with some isolated short hairs, lower vertex and occiput strongly concave centrally; gena shiny, slightly coriaceous, hairless in upper half, with moderately long silvery hairs in lower part.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar bordered behind by weak carina. Pronotum strongly coriaceous-punctate, laterally longitudinally strigose with sparse silvery hairs. Mesoscumum coriaceous, shiny. Notauli reaching tegula level, convergent, strongly impressed with tight transverse wrinkles along its length. Prescutelar groove with longitudinal wrinkles. Scutellum coriaceous, with complete lateral carinae. Mesopleuron strongly coriaceous-punctate, with white long hairs; these hairs absent in an antero-posterior diagonal band that includes speculum. Mesopleural fovea absent or represented by a weak impression far in front of mesopleural suture. Sternaulus virtually absent. Metapleuron and propodeum densely punctate or rugulose-punctate on a strongly coriaceous background, with very dense and long whitish hairs. Posterior transverse carina of mesosternum complete (not interrupted in-front of each middle coxa). Propodeum long, its spiracle round and very small. Anterior transverse carina absent. Posterior transverse carina present in the centre and in area posteroexterna, obsolescent laterally. Median longitudinal carinae of propodeum slightly distinct anterior to apical transverse carina; lateral longitudinal carina absent anterior to apical transverse carina, shortly present distally. Pleural carina strong. Area petiolaris confluent with areas posteroexterna. Vein *3rs-m* unpigmented. Vein *2rs-m* obliterated or at most 0.10 times the length of abscissa of *M* between *2rs-m* and *2m-cu*. Vein *2m-cu* vertical with one bulla. *Cu-a* of fore wing clearly distal of *Rs&M*. Abscissa of Cu_1 between *1m-cu* and Cu_{1a} inclivous, forming angle of 150° with Cu_1, 1.25 times length of Cu_{1b} (Fig. 5C). *M+Cu* of hind wing strongly arched. Hind wing with distal abscissa of Cu_1 pigmented. Cu_1&*cu-a* angled clearly below middle. Distal abscissa of *1A* of hind wing moderately long and strong. Tip of axillus very close to-anal margin. Tibiae and tarsi with sparse stout bristles, stronger and denser on hind leg. Hind femur with some stout bristles at distad part.

Metasoma. First tergite smooth and polished about 1.65 times as long as maximum width (Fig. 4B), laterally with isolated long silvery hairs; its maximum width

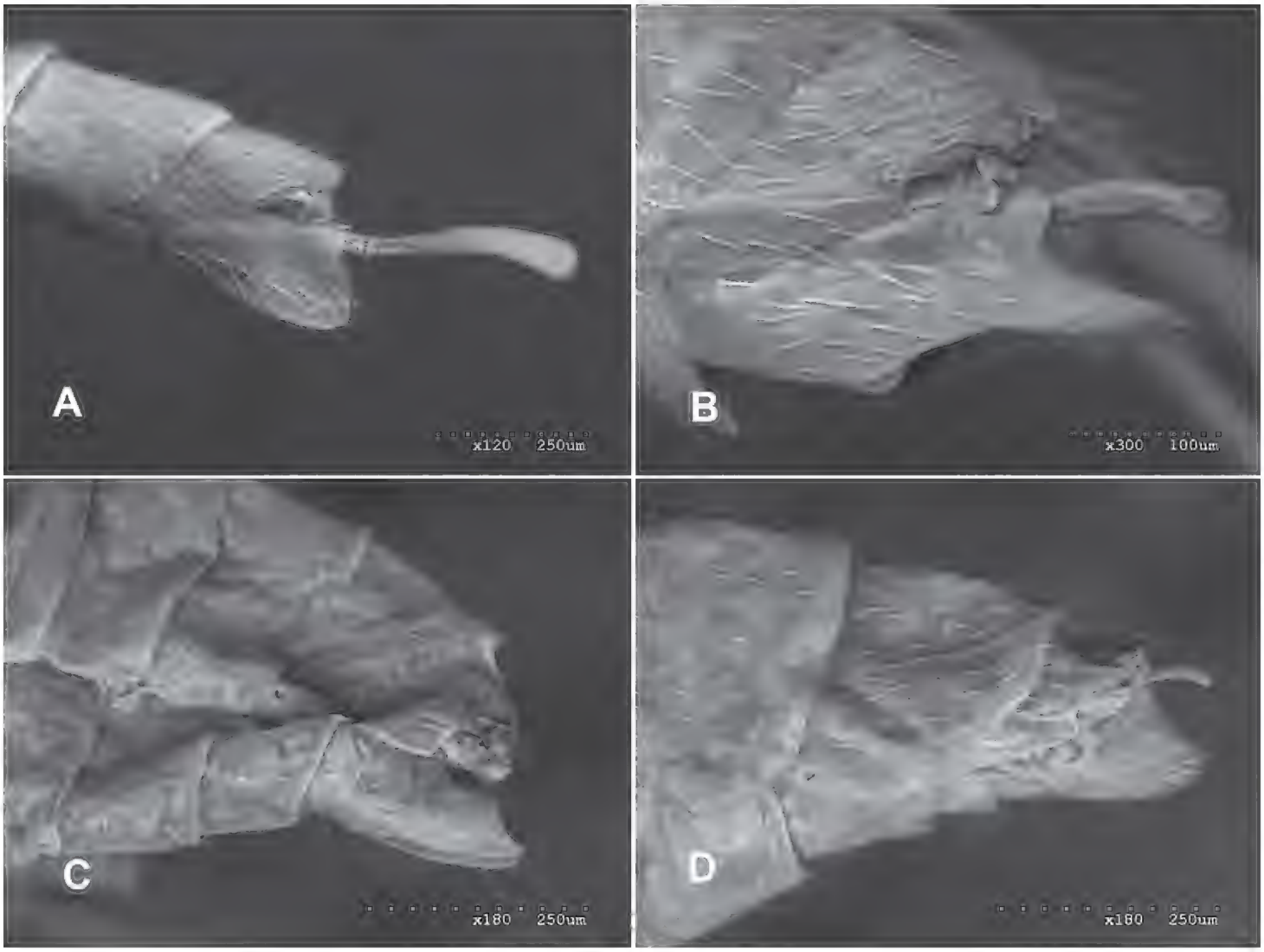

Figure 6. Male claspers: **A** *Ateleute kichua* sp. n. **B** *Ateleute shuar* sp. n. **C** *Ateleute huaorani* sp. n. **D** *Ateleute amarakaeri* sp. n.

at apex about 3.80 times minimum width (at base). Median dorsal carinae of first tergite absent, dorsolateral carinae shortly present at base, ventrolateral carinae slightly distinct posteriorly. Spiracle at anterior 0.30–0.40 of tergite. Tergite 2 1.04 times as long as maximum width, shiny, coriaceous, with short and very sparse hairs laterally; tergites 3-8 coriaceous, rather densely pubescent. Thyridium absent. Ovipositor sheath 0.60 times as long as hind tibia, truncate at apex (Fig. 3C). Ovipositor moderately slender and slightly down curved (Fig. 2C), its tip elongate lanceolate, nodus weak, its lower valve with three weak lateral ridges at apex.

Coloration (Fig. 2C). Head and mesosoma black; central part of mandibles, metasoma except first three tergites dorsally, all femora fore and mid tibiae, ovipositor, scapus and pedicel below and front and mid coxa, reddish-brown. Base of mandible and teeth, flagellum and dorsal central part of first tergite, second and third, hind coxa, trochanter, trochantellus, tibia and distal tarsomere, dark brown. Flagellomeres 5–10 above, palpi, front apex of coxa, trochanter and trochantellus and tegula, white. Hind tarsus (except distal tarsomere) light yellow. Base of first tergite and mid trochanter and part of trochantellus yellow. Ovipositor sheath brownish.

Male. Body length 4.0–4.3 mm, head length × width 0.3–0.4 × 0.6–0.8 mm, mesosoma length × width (mesoscutum) 1.2–1.3 × 0.4–0.5 mm, fore wing length 2.7–3.0 mm, flagellum 4.1–4.4 mm.

Head. Transverse, 0.49–0.57 times as long as wide, strongly narrowed behind eyes, gena slightly rounded (dorsal view). Antenna thin, filiform with 25–25 flagellomeres; flagellum longer than body, 1.50–1.60 times as long as fore wing (Fig. 8A), measures of flagellomeres different; basal half of flagellum slightly compressed. Mandible 2.14–2.28 as long as its width at middle. Malar space about 0.30 times as long as basal width of mandible. Ocellar-ocular distance and distance between hind ocelli 1.14–1.33 and 1.57–1.71 times maximum diameter of lateral ocellus, respectively. Vertex slightly coriaceous, elevated above the eye level, abruptly folded behind hind ocelli in a vertical lower vertex, lower vertex and occiput smooth and shiny, deeply concave centrally.

Mesosoma. Pronotum slightly coriaceous. Scutellum smooth. Mesopleuron coriaceous with short and sparse white hairs. Sternaulus slightly impressed anteriorly. Whitish hairs of metapleuron and propodeum shorter. Posterior transverse carina strong and complete. Median longitudinal and lateral longitudinal carina of propodeum absent anterior to apical transverse carina; lateral longitudinal carina, shortly present distally. Vein 2*rs-m* obliterated. Vein 2*m-cu* slightly inclivous, abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, forming an angle of 140°–150° with Cu_1, 1.20–1.40 times length of Cu_{1b} (Fig. 5D). Hind wing with distal abscissa of Cu_1 pigmented. Cu_1&*cu-a* angled clearly below middle. Hind femur with numerous stout bristles (Fig. 7A).

Metasoma. First tergite coriaceous about 1.86–2.03 times as long as maximum width; maximum width at apex about 2.10–2.30 times minimum width (at base). Median dorsal carinae of first tergite absent, dorsolateral carina present anterior spiracle, ventrolateral carinae more or less distinct posteriorly. Spiracle in anterior 0.37–0.42 of tergite. Tergite 2 not measured. Thyridium weak, as a granulate, small and transverse depression. Claspers transversally and widely truncate (Fig. 6A).

Coloration (Fig. 8A). Body brown. Mandibles (except teeth), palpi, front and middle legs except base of coxa and distal tarsomere, yellow. Scapus and pedicel light brown. Hind trochanter, trochantellus, femur and anterior part of tibia, orange. Second and third tarsomeres of hind leg and sometimes the most part of first and fourth, whitish.

Taxonomic discussion. Females differ from *A. carolina, A. grossa* and *A. tinctoria* by their coloration: head and mesosoma entirely black and metasoma anteriorly dark brown and posteriorly reddish-brown. They differ from other South American species by their brownish ovipositor sheath, moderately truncate at the apex; head 0.48 times as long as wide; antenna (except white band) dark brown with 30 flagellomeres; first tergite 1.65 times as long as wide posteriorly; abscissa of Cu_1 between 1*m-cu* and Cu_{1a} 1.25 times the length of Cu_{1b}; vein 2*rs-m* obliterated or at most 0.10 times the length of abscissa of *M* between 2*rs-m* and 2*m-cu*; vein 2*m-cu* vertical; malar space about 0.65 times as long as basal width of mandible and body length 5.9 mm. Males differ from other species by their claspers being transversally and widely truncate; vein 2*rs-m* obliterated and hind femur with numerous conspicuous stout bristles.

Remarks. We have linked males and females of this species using the following characters: vein 2*rs-m* vein obliterated or at most 0.10 times the length of abscissa of *M* between 2*rs-m* and 2*m-cu* (Figs 5C, D) and the abscissa of Cu_1 between 1*m-cu*

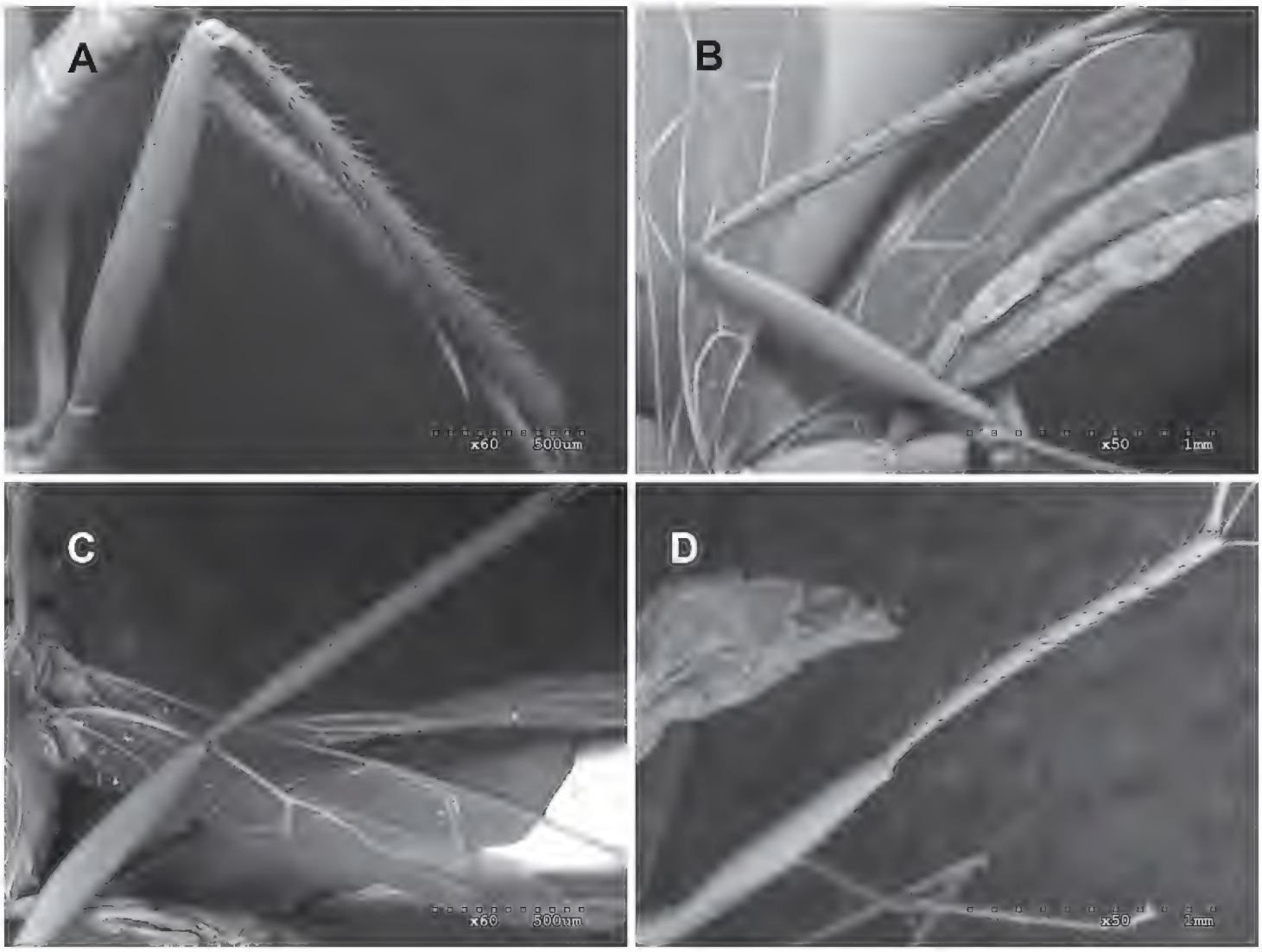

Figure 7. Male hind legs: **A** *Ateleute kichua* sp. n. **B** *Ateleute shuar* sp. n. **C** *Ateleute huaorani* sp. n. **D** *Ateleute amarakaeri* sp. n.

and Cu_{1a} inclivous, forming an angle of 140°–150° with Cu_1, 1.20–1.40 times the length of Cu_{1b} (Figs 5C, D). This combination of characters differs from those of other South American species.

Etymology. This species is dedicated to the Ecuadorian Kichwa people, who live in the Department of Orellana, Ecuador.

Phenology. Adults fly in May-June and September-October.

Distribution. Ecuador.

Habitat. The specimens have been collected by canopy fogging in Onkone Gare, Department of Orellana, Ecuador, in the same habitat as *A. huaorani*.

Ateleute shuar sp. n.

urn:lsid:zoobank.org:act:ECA9ECDC-C99D-4A20-B71D-64DCB206AE70
http://species-id.net/wiki/Ateleute_shuar
Figs 1B, 2E, 3D, 4D, 5I–L, 6B, 7B, 8B

Material examined. Holotype: ECUADOR, ♀, Dept. Orellana, Onkone Gare, 0°39'25.7"S, 76°27'10.8"W, Canopy fogging, 216.3 m., 2.VI.1995, T. L. Erwin et al. Lot.1086 (USNM).

Paratypes: ECUADOR, 1 ♂, same locality holotype, 21.V.1996, T. L. Erwin et al. Lot.1546; 1 ♂, same locality and date, T. L. Erwin et al. Lot.1086 (USNM). **PERU**, 1 ♀, Dept. Loreto, Iquitos area, Allpahuayo, 22.I-22.II.2000, clay, Sääksjärvi, I. E. et al. leg. Malaise Trap, APHI, F2/1 (ZMUT); 1 ♂, same locality, 17.X-8. XII.2000, clay, Sääksjärvi, I. E. et al. leg., Malaise Trap, APHI, H1/15 (UNSM).

Description. Female. Body length (without ovipositor) 5.2–5.6 mm, head length × width 0.5–0.7 × 1.1–1.3 mm, mesosoma length × width (mesoscutum) 1.7–1.9 × 0.6–0.8 mm, length of ovipositor sheath 1.1–1.2 mm, fore wing length 3.7–4.1 mm, flagellum 6.1 mm.

Head. Transverse, 0.48–0.51 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna with 29–32 flagellomeres; flagellum longer than body, 1.50–1.60 times as long as fore wing (Fig. 2E); its segments 1, 4, 7 and 12 about 7.86–8.00 (annellus excluded), 5.60–5.70, 2.20–2.30 and 1.00–1.10 times as long as wide, respectively; basal flagellar segments 1 to 4 slightly compressed, flagellomeres 5 to 8 cylindrical and from 9 to near apex depressed (flattened ventrally with short sensory setae in this area); maximum width of flagellum twice minimum width of first flagellomere; flagellum strongly tapered towards apex. Clypeus strongly convex, its margin sharp and truncate in centre. Mandible short, 1.70–2.00 as long as width at the middle, teeth equal, base strongly swollen. Malar space about 0.80–0.86 times as long as basal width of mandible. Occipital carina absent dorsally, ventrally joining hypostomal carina just before mandible. Ocellar-ocular distance and distance between hind ocelli 1.00–1.12 and 1.00–1.30 times maximum diameter of lateral ocellus, respectively. Face finely coriaceous, virtually impunctate, with silvery hairs. Frons coriaceous. Vertex slightly coriaceous, with very sparse short hairs, lower vertex and occiput strongly concave centrally. Gena shiny, slightly coriaceous, hairless in upper half, with moderately long and dense silvery hairs in lower part.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar bordered behind by weak carina. Pronotum coriaceous, laterally shortly longitudinally strigose. Mesoscumum coriaceous, shiny. Notauli reaching tegula level, convergent, strongly impressed. Prescutelar groove with weak longitudinal wrinkles. Scutellum coriaceous, with complete lateral carinae. Mesopleuron coriaceous, with very fine and dense punctures and white long hairs; these hairs absent in an antero-posterior diagonal band including speculum. Mesopleural fovea absent or represented by a weak impression far in front of mesopleural suture. Sternaulus inconspicuous. Metapleuron and propodeum fine and very densely punctate or rugulose-punctate on a coriaceous background, with very dense whitish hairs. Posterior transverse carina of mesosternum complete (not interrupted in-front of each middle coxa). Propodeum 1.21–1.28 times as long as its width at spiracle level (dorsal view), with a narrow longitudinal central depression; its spiracle rounded and very small, close to pleural carina. Anterior transverse carina absent. Posterior transverse carina present in the centre and in area posteroexterna, absent laterally. Median longitudinal carinae absent; lateral longitudinal carina absent anterior to apical transverse carina, shortly present distad. Pleural carina strong. Area petiolaris confluent with areas posteroexterna. Vein 3*rs-m* unpigmented. Vein 2*rs-m*

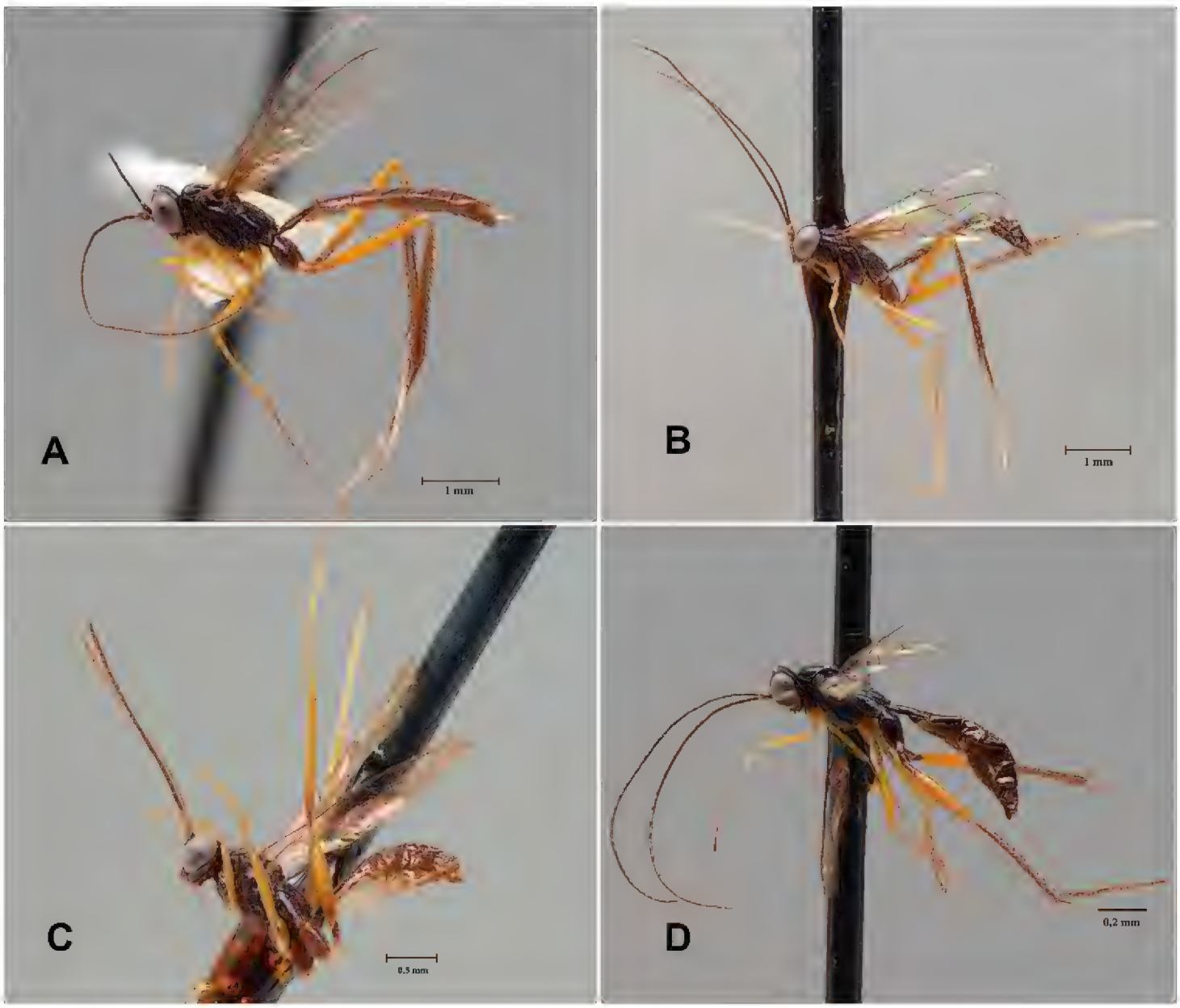

Figure 8. Male habitus, lateral: **A** *Ateleute kichua* sp. n. (paratype) **B** *Ateleute shuar* sp. n. (paratype) **C** *Ateleute huaorani* sp. n. (paratype) **D** *Ateleute amarakaeri* sp. n. (paratype).

conspicuous, 0.45–0.55 times length of abscissa of *M* between 2*rs-m* and 2*m-cu* (Fig. 1B). Vein 2*m-cu* slightly inclivous with one bulla. *Cu-a* of fore wing a little distad of *Rs&M*, inclivous. Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, forming angle of 151° with Cu_1, 1.10–1.17 times length of Cu_{1b} (Fig. 5I). *M+Cu* of hind wing strongly arched. Hind wing with distal abscissa of Cu_1 pigmented. Cu_1&*cu-a* angled clearly below middle (Fig. 5K). Distal abscissa of 1*A* of hind wing very short, nearly absent. Tip of axillus very close to anal margin. Tibiae and tarsi with sparse stout bristles, stronger and denser on hind leg. Hind femur without stout bristles.

Metasoma. First tergite smooth and polished about 1.70–1.77 times as long as maximum width (Fig. 4D); its maximum width at apex about 2.80–3.40 times minimum width (at base). Median dorsal and dorsolateral carinae of first tergite absent, ventrolateral carinae more or less distinct posteriorly. Spiracle at anterior 0.41–0.43 of tergite. Tergite 2 0.78–0.90 times as long as maximum width, shiny, slightly coriaceous, with short and very sparse hairs; tergites 3–8 rather more densely pubescent. Thyridium transverse as short inconspicuous impressed and granulate furrow. Ovipositor sheath 0.55–0.57 times as long as hind tibia, very narrowly

truncate at apex (Fig. 3D). Ovipositor moderately slender and slightly down curved (Fig. 2E), its tip elongate lanceolate, nodus weak, its lower valve with three weak lateral ridges at apex.

Coloration (Fig. 2E). Head and mesosoma black to dark brown; central part of mandibles, scapus and pedicel below, metasoma except first tergite, front and middle femora, apex of hind coxa and trochanter, trochantellus, femur and tibia entirely, and ovipositor, reddish-brown. Base of mandible and teeth, flagellum, and all distal tarsomeres, brownish. Band on flagellomeres 5–11(12), palpi, front and mid coxa, trochanter, trochantellus and tegula, white. Fore and mid femora ventrally, tibiae and tarsi (except distal tarsomeres), base of hind coxa and trochanter, tarsus and base of first tergite, yellow. Ovipositor sheath brownish.

Male. Body length 3.2–3.8 mm, head length × width 0.3–0.4 × 0.6–0.7 mm, mesosoma length × width (mesoscutum) 0.9–1.1 × 0.3–0.4 mm, fore wing length 2.4–2.9 mm, flagellum 3.4–4.1 mm.

Head. Transverse, 0.51 times as long as wide, strongly narrowed behind eyes, gena slightly rounded (dorsal view). Antenna thin, filiform with 24–25 flagellomeres; flagellum longer than body, 1.30–1.40 times as long as fore wing (Fig. 8B), measures of flagellomeres different; basal half of flagellum slightly compressed. Mandible short, 2.14–2.30 times as long as its width at middle. Malar space about 0.44–0.60 times as long as basal width of mandible. Ocellar-ocular distance and distance between hind ocelli 1.00–1.20 and 1.43–1.80 times maximum diameter of lateral ocellus, respectively. Vertex slightly coriaceous, elevated above the eye level, abruptly folded behind hind ocelli in a vertical lower vertex, lower vertex and occiput smooth and shiny, slightly concave centrally.

Mesosoma. Pronotum smooth and shiny, slightly coriaceous. Mesopleuron coriaceous with short and sparse white hairs. Vein 2*rs-m* conspicuous, 0.45–0.47 times length of abscissa of *M* between 2*rs-m* and 2*m-cu*. Abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, forming angle of 153° with Cu_1, 1.00–1.20 times length of Cu_{1b} (Fig. 5J). Hind wing with distal abscissa of Cu_1 pigmented. Cu_1&*cu-a* angled clearly below middle (Fig. 5L). Hind femur with 3–6 stout bristles on dorsal and ventral edge (Fig. 7B).

Metasoma. First tergite coriaceous punctate about 2.30–2.50 times as long as maximum width; maximum width at apex about 1.80 times minimum width (at base). Median dorsal carinae of first tergite absent, dorsolateral carina present anterior spiracle, ventrolateral carinae more or less distinct. Spiracle at anterior 0.45 of tergite. Thyridium weak, as a granulate, small and rounded depression. Claspers very narrow and pointed (Fig. 6B).

Coloration (Fig. 8B). Body brown; mandibles (except teeth), scapus and pedicel below, front and middle leg, yellowish. Hind femur red. Palpi, front trochanter, trochantellus, and hind tarsus (except distal tarsomere), whitish.

Taxonomic discussion. Females differ from *A. carolina, A. grossa* and *A. tinctoria* by their coloration: head and mesosoma black or dark brown and metasoma mostly reddish-brown. They differ from other South American species by their brownish ovipositor sheath which is very narrowly truncate at apex, nearly pointed; head 0.48–0.51

times as long as wide; antenna (except white band) brownish with 29–32 flagellomeres; first tergite 1.70–1.77 times as long as maximum width; abscissa of Cu_1 between 1*m-cu* and Cu_{1a} moderately inclivous, 1.10–1.17 times the length of Cu_{1b}; vein 2*rs-m* conspicuous, 0.45–0.55 times length of abscissa of *M* between 2*rs-m* and 2*m-cu*; vein 2*m-cu* inclivous; malar space about 0.80–0.86 times as long as basal width of mandible; hind wing with distal abscissa of Cu_1 strong and pigmented; Cu_1&*cu-a* strongly angled below middle; and body length 5.2–5.6 mm. Males can be recognized by the claspers, which have an inwardly curved profile dorsally, very narrow and pointed; vein 2*rs-m* present; hind femur with 3–6 stout bristles on dorsal and ventral edge and abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, 1.00–1.20 times the length of Cu_{1b}.

Remarks. We have linked males and females of this species using the following characters: vein 2*rs-m* conspicuous, 0.45–0.55 times the length of abscissa of *M* between 2*rs-m* and 2*m-cu* (Figs 5I, J) and abscissa of Cu_1 between 1*m-cu* and Cu_{1a} inclivous, forming an angle of 151–153° with Cu_1, 1.0–1.20 times the length of Cu_{1b} (Figs 5I, J), hind wing with distal abscissa of Cu_1 pigmented and Cu_1&*cu-a* angled clearly below middle (Figs 5K, L). These characters in combination differ from those of other South American species.

Etymology. This species is dedicated to the Ecuadorian Shuar people, who live in the Department of Orellana, Ecuador.

Phenology. Adults fly in May-June and October-November.

Distribution. Ecuador and Peru.

Habitat. The holotype has been collected by canopy fogging in Onkone Gare, Department of Orellana, Ecuador, in the same habitat as *A. huaorani*.

Tamaulipeca Kasparyan, 2000

Tamaulipeca Kasparyan, 2000: 231. Type species: *Tamaulipeca clypeator* Kasparyan & Hernández, 2000.

Tamaulipeca bora sp. n.

urn:lsid:zoobank.org:act:68A5D7F0-C1E3-4AC6-974A-765060032942
http://species-id.net/wiki/Tamaulipeca_bora
Figs 1C, 1D, 9B, 9F, 9I

Material examined. Holotype: **PERU,** ♀, Dept. of Loreto, Iquitos area, Allpahuayo, 21.XII.2000-23.I.2001, clay, Sääksjärvi, I.E. et al. leg., Malaise trap, APHI, H2/18 (UNSM). **Paratypes: PERU** 1 ♀, same locality, 16.VII-2.VIII.2000, clay, Sääksjärvi, I.E. et al. leg., Malaise trap, APHI, H1/10 (UNSM); 1 ♀, same locality, 2–24.III.2000, white sand, Sääksjärvi, I.E. et al. leg., Malaise trap, APHI, G1/3 (ZMUT); 1 ♀, same locality, 18.VIII-14.IX.2000, clay, Sääksjärvi, I.E. et al. leg., Malaise trap, APHI, H2/12 (CEUA). **ECUADOR**, 1 ♀, Dept. of Orellana, Onkone Gare, 0°39'25.7"S, 76°27'10.8"W, Canopy fog., 216.3m, 3.VII.1995, T.L.Erwin et al. leg., Lot#1094 (USNM).

Description. *Female.* Body length (without ovipositor) 6–7 mm, head length × width 0.8–0.9 × 1.2–1.4 mm, mesosoma length × width (mesoscutum) 2.0 × 0.8–1.0 mm, length of ovipositor sheath 1.4 mm, fore wing length 4–5 mm, flagellum 6.6–7.8 mm.

Head. Transverse, 0.70 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna with 28–29 flagellomeres; flagellum slightly longer than body, 1.55–1.65 times as long as fore wing (Fig. 9B); its segments 1, 4, 7 and 12 (and most of following segments) about 9, 7, 3 and 1.10 times as long as wide, respectively; basal flagellar segments 1 to 9 compressed or slightly cylindrical and flagellomeres 10–11 and following depressed (flattened ventrally and this flattened area covered with short sensory setae); maximum width of flagellum about twice minimum width of first flagellomere; flagellum strongly tapered towards apex (Fig. 9B). Clypeus convex, almost triangular, with apex produced into acute point, about once as long as distance between clypeal foveae (Figs 1C, 9F). Mandible short, about 2 times as long as width at the middle, teeth with the lower tooth slightly longer. Malar space about 0.80–0.90 times as long as basal width of mandible (Fig. 9F). Occipital carina absent dorsally, ventrally joining hypostomal carina just before mandible. Ocellar-ocular distance and distance between hind ocelli 1.00 and 1.20 times maximum diameter of lateral ocellus, respectively. Face coriaceous, matt and with moderately long silvery hairs (Fig. 9F). Frons matt, coriaceous. Vertex slightly coriaceous, with very sparse short hairs, lower vertex and occiput centrally concave; gena slightly coriaceous, occiput and gena with scattered silvery hairs.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar without carina. Pronotum coriaceous, laterally longitudinally strigose with sparse silvery hairs. Mesoscumum coriaceous, shiny, slightly strigose in the area between posterior end of notauli. Notauli reaching tegula level, convergent, strongly impressed and without clear transverse wrinkles along its length. Prescutelar groove with longitudinal wrinkles. Scutellum weakly coriaceous, with lateral carinae present only at anterior end of the scutellum. Mesopleurum coriaceous, with very dense punctures and white long hairs. Mesopleural fovea present far in front of mesopleural suture. Sternaulus present and reaching approximately middle length of mesopleurum. Metapleurum and propodeum densely punctate or rugose-punctate on a coriaceous background, with dense and whitish hairs. Posterior transverse carina of mesosternum complete (not interrupted in front of each middle coxa). Propodeum long, its spiracle round and very small. Anterior transverse carina absent. Posterior transverse carina present in the centre and in area posteroexterna, absent laterally, slightly undulating along its length. Median longitudinal carinae of propodeum absent; lateral longitudinal carina absent anterior to apical transverse carina, present distad. Pleural carina strong. Area petiolaris confluent with areas posteroexterna. Vein 2*rs-m* very short, about 0.20 length of *M* (Fig. 1D). Vein 2*m-cu* almost vertical and with one short bulla. *M*+*Cu* of hind wing strongly arched. Hind wing with distal abscissa of Cu_1 pigmented. Vein *cu-a* clearly shorter than abscissa of *Cu* between *M* and Cu_1 (Fig. 9I). Distad abscissa of 1*A* of hind wing short. Base of hind coxa of moderate depth, with a short transverse shallow groove next to its attachment. Tibiae and tarsi with sparse and stout bristles, bristles stronger on hind leg.

Metasoma. First tergite smooth, polished, very slightly coriaceous and about twice as long as maximum wide; its maximum width at apex about 3 times minimum width

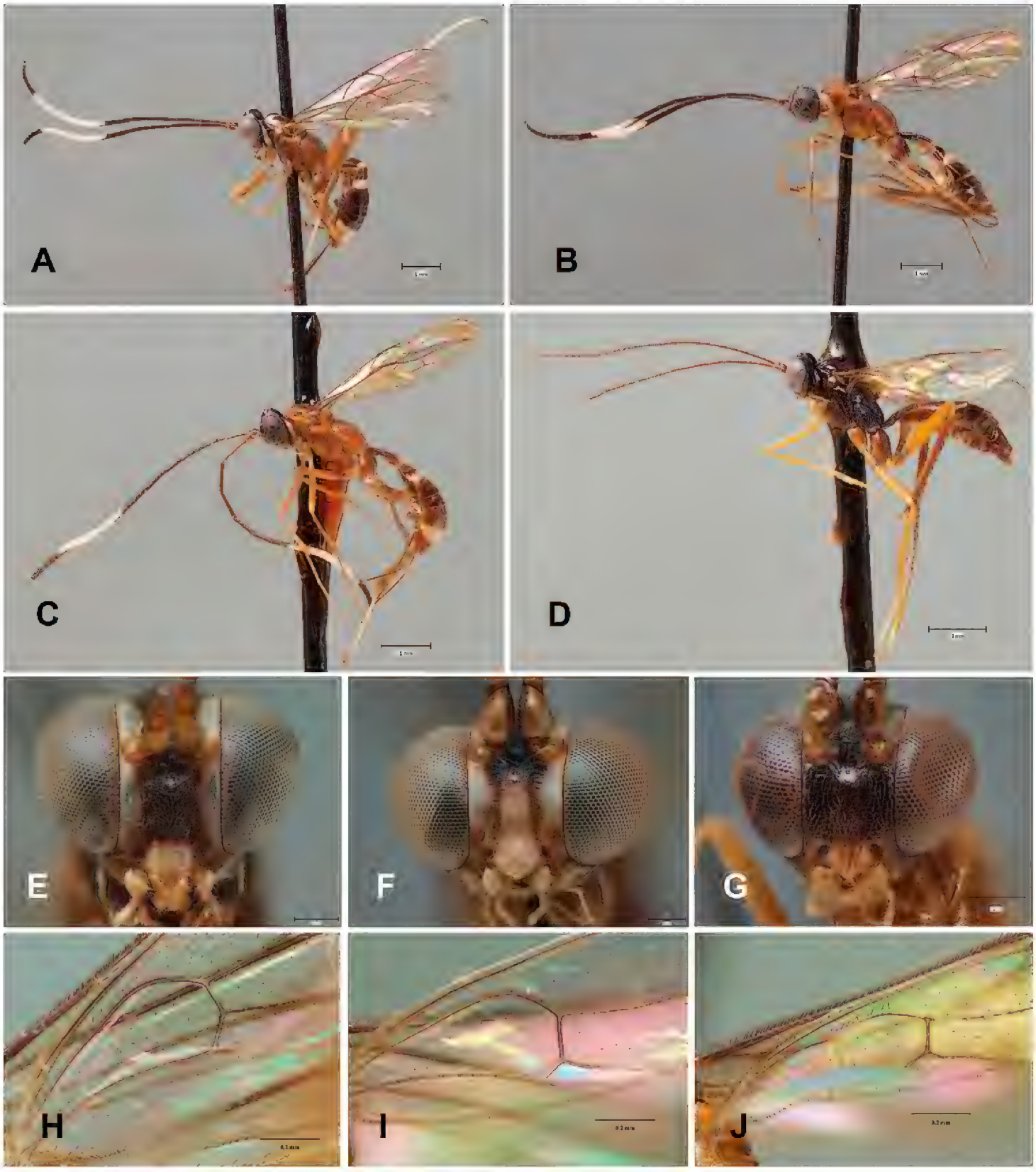

Figure 9. *Tamaulipeca* spp.: **A** *T. candoshi* sp. n., habitus, lateral, ♀ (holotype) **B** *T. bora* sp. n., habitus, lateral, ♀ (paratype) **C** *T. matses* sp. n., habitus, lateral, ♀ (holotype) **D** *Tamaulipeca* sp., habitus, lateral, ♂ **E** *T. candoshi* sp. n., face, frontal, ♀ **F** *T. bora* sp. n., face, frontal, ♀ **G** *T. matses* sp. n., face, frontal, ♀ **H** *T. candoshi* sp. n., hind wing, ♀ **I** *T. bora* sp. n., hind wing, ♀ **J** *T. matses* sp. n., hind wing, ♀.

(at base). Median dorsal and dorsolateral carinae of first tergite absent, ventrolateral carinae more or less distinct posteriorly. Spiracle at mid length of first tergite. Tergites 2-3 smooth and polished, laterally with short, sparse hairs; tergites 4-8 rather densely pubescent. Thyridium present as short impressed and granulate furrow. Ovipositor sheath about 0.50 times as long as hind tibia, truncate at apex. Ovipositor moderately slender and slightly down curved (Fig. 9B), its tip elongate lanceolate, nodus weak, its lower valve with a few weak and oblique ridges at apex.

Coloration (Fig. 9B). Head blackish with mandibles (except of brown teeth), palpi, clypeus, face, gena and orbits mostly white or creamy white. Antenna dark brown with scape whitish and broad white band on flagellar segments 7–16. Mesosoma reddish with whitish marks on anterior side of pronotum and subtegular area. Legs mostly creamy whitish to light brown with darker brown coloration in hind coxa, trochanter and trochantellus of mid and hind leg, and all distal tarsomeres. Metasoma dark brown with broad whitish bands on hind edges of tergites 1-3 and with a very narrow apical whitish band on other tergites, except the seventh, which is entirely brown. Ovipositor sheath dark brown, ovipositor yellowish.

Male. Unknown.

Taxonomic discussion. This species differs from all other species of the genus by the following characters in combination: mesoscutum and scutellum reddish, without white V-shaped marks; face with broad white orbits; metasoma dark brown with broad whitish bands on hind edges of tergites 1-3 and with a very narrow apical whitish band on other tergites except the seventh, which is entirely brown; and hind wing vein *cu-a* clearly shorter than abscissa of *Cu* between *M* and Cu_1.

Remarks. There is some variation especially in the coloration of the face (some specimens have a slightly darker face).

Etymology. This species is dedicated to the Peruvian Amazonian Bora people, who live in the vicinity of the type locality (Department of Loreto, Peru).

Phenology. Adults fly in July-August and December-January.

Distribution. Ecuador and Peru.

Habitat. The Peruvian type locality (the National Reserve of Allpahuayo-Mishana) of *T. bora* sp. n. is situated in a complex mosaic of different kinds of rain forest types (e.g. Sääksjärvi et al. 2004). In flat low-lying areas, soils are often clayey in texture, relatively rich in nutrients, and mainly brownish-grey in colour. Soils on hilltops are often composed of so-called white sand, which is of quartzitic mineralogy, very nutrient poor, and grey to white in colour. Also loamy soils of intermediate nutrient content occur in the area. *Tamaulipeca bora* has been collected by Malaise trapping in rain forests growing on both white sand (one paratype) and clayish soils (holotype and 2 paratypes). One paratype has been collected by canopy fogging in Onkone Gare, Department of Orellana, Ecuador, in the same habitat as *A. huaorani*.

***Tamaulipeca candoshi* sp. n.**
urn:lsid:zoobank.org:act:8E6F39B5-A7E5-4BE0-BCB4-BFCF94D9EDA4
http://species-id.net/wiki/Tamaulipeca_candoshi
Figs 9A, 9E, 9H

Material examined. Holotype: **ECUADOR,** ♀, Dept. of Orellana, Onkone Gare, 0°39'25.7"S, 76°27'10.8"W, Canopy fog., 216.3m, 29.VI.1994, T. L. Erwin et al. leg., Lot#757 (USNM).

Description. *Female.* Body length (without ovipositor) 5.0 mm, head length × width 0.8 × 1.2 mm, mesosoma length × width (mesoscutum) 2.4 × 0.7 mm, length of ovipositor sheath 1.8 mm, fore wing length 4.1 mm, antenna broken.

Head. Transverse, 0.40 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna broken; its segments 1, 4, 7 and 12 (and most of following segments) about 7.40, 5.00, 2.00 and 1.10 times as long as wide, respectively; basal flagellar segments 1 to 6 compressed or slightly cylindrical and flagellomere 7 and following depressed (flattened ventrally and this flattened area covered with short sensory setae); maximum width of flagellum about twice minimum width of first flagellomere; flagellum strongly tapered towards apex (Fig. 9A). Clypeus convex, almost triangular, with apex produced into acute point, about once as long as distance between c1ypeal foveae (Fig. 9E). Mandible short, about twice as long as width at middle, lower tooth slightly longer than upper tooth. Malar space about 0.70 times as long as basal width of mandible (Fig. 9E). Occipital carina absent dorsally, ventrally joining hypostomal carina just before mandible. Ocellar-ocular distance and distance between hind ocelli about once maximum diameter of lateral ocellus. Face coriaceous, matt and with moderately long silvery hairs (Fig. 9E). Frons matt, coriaceous. Vertex slightly coriaceous, with very sparse short hairs, lower vertex and occiput centrally concave; gena slightly coriaceous, occiput and gena with scattered silvery hairs.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar without carina. Pronotum coriaceous, laterally slightly longitudinally strigose and with sparse silvery hairs. Mesoscumum coriaceous, slightly shiny, not strigose in the area between posterior end of notauli. Notauli reaching tegula level, convergent, strongly impressed and without clear transverse wrinkles along its length. Prescutelar groove with short longitudinal wrinkles. Scutellum weakly coriaceous, with lateral carinae present only at anterior end of the scutellum. Mesopleurum coriaceous, with very dense punctures and white long hairs. Mesopleural fovea present far in front of mesopleural suture. Sternaulus inconspicuous. Metapleurum and propodeum densely punctate or rugose-punctate on a coriaceous background, with dense whitish hairs. Posterior transverse carina of mesosternum complete (not interrupted in-front of each middle coxa). Propodeum long, its spiracle round and very small. Anterior transverse carina absent. Posterior transverse carina present in the centre and in area posteroexterna, absent laterally, very slightly undulating along its length. Propodeum with short transverse carinae just before mid-length of the propodeum. Median longitudinal carinae of propodeum absent; lateral longitudinal carina absent anterior to posterior transverse carina, present behind it. Pleural carina strong. Area petiolaris confluent with areas posteroexterna. Vein 2*rs-m* short, about 0.40 length of M. Vein 2*m-cu* almost vertical and with one short bulla. *M*+*Cu* of hind wing strongly arched. Hind wing with distal abscissa of Cu_1 strongly pigmented. Vein *cu-a* about same length as abscissa of *Cu* between *M* and Cu_1 (Fig. 9H). Distad abscissa of 1*A* of hind wing short. Base of hind coxa of moderate depth, with a short transverse shallow groove next to its attachment. Tibiae and tarsi with sparse and stout bristles, bristles stronger on hind leg.

Metasoma. First tergite smooth, polished and about 1.70 times as long as maximum width; its maximum width at apex about 3.00 times minimum width (at base). Median dorsal and dorsolateral carinae of first tergite absent, ventrolateral carinae more or less distinct posteriorly. Spiracle at mid length of first tergite. Tergites 2-3 smooth and polished, laterally with short, sparse hairs; tergites 4-8 rather densely pubescent. Thyridium present as short impressed and granulate furrow. Ovipositor sheath 0.74 times as long as hind tibia, truncate at apex. Ovipositor moderately slender and slightly down curved (Fig. 9A), its tip elongate lanceolate, nodus weak, its lower valve without oblique ridges at apex.

Coloration (Fig. 9A). Head dark brownish with mandibles (except of brown teeth), palpi, clypeus mostly white or creamy white; orbits broadly whitish and gena with whitish spots. Antenna dark brown with scape yellowish and broad white band on flagellar segments 7–18. Mesosoma reddish with pronotum, mesoscutum and scutellum brown; pronotum with anterior edge broadly white, mesoscutum with 2 broad V-shaped marks and scutellum with white V-shaped mark. Legs mostly light brown with darker lighter coloration mostly in trochanters and hind tarsi. Metasoma dark brown with broad whitish bands on hind edges of tergites 1-2 and with a very narrow apical whitish band on tergites 4-6; tergite 7 whitish. Ovipositor sheath dark brown, ovipositor yellowish.

Male. Unknown.

Taxonomic discussion. This species differs from all other species of the genus by the following characters in combination: mesoscutum and scutellum brown, with white V-shaped marks; metasoma dark brown with broad whitish bands on hind edges of tergites 1-2 and with a very narrow apical whitish band on tergites 4-6, tergite 7 whitish; and hind wing vein *cu-a* of about same length as abscissa of *Cu* between *M* and Cu_1.

Etymology. This species is dedicated to the Ecuadorian Candoshi people, who live in the Department of Orellana, Ecuador.

Phenology. Only one specimen is known, collected in June.

Distribution. Ecuador.

Habitat. The holotype was collected by canopy fogging in Onkone Gare, Department of Orellana, Ecuador, in the same habitat as *A. huaorani*.

***Tamaulipeca matses* sp. n.**

urn:lsid:zoobank.org:act:54BD46F5-E319-4254-87EC-15C87242E39A
http://species-id.net/wiki/Tamaulipeca_matses
Figs 9C, 9G, 9J

Material examined. Holotype: **PERU**, ♀, Dept. of Loreto, Iquitos area, Allpahuayo, 1.XII.2000-21.XII.2000, clay, Sääksjärvi, I.E. et al. leg., Malaise trap, APHI, H2/17 (USMN). **Paratype:** PERU, 1 ♀, same locality, 15.X.2000–8.XI.2000, clay, Sääksjärvi, I.E. et al. leg., Malaise trap, APHI, J2/15 (ZMUT).

Description. *Female.* Body length (without ovipositor) 4.3–4.5 mm, head length × width 0.6–0.8 × 0.9–1.1 mm, mesosoma length × width (mesoscutum) 1.8 × 0.5–

0.6 mm, length of ovipositor sheath 1.2–1.4 mm, fore wing length 3.0–3.7 mm, antenna broken.

Head. Transverse, 0.60–0.70 times as long as wide, strongly narrowed behind eyes, gena at same level as hind rim of eye (dorsal view). Antenna broken (in both holo- and paratype female); its segments 1, 4, 7 and 12 (and most of following segments) about 7.70, 6.60, 2.5 and 1.10 times as long as wide, respectively; basal flagellar segments 1 to 9 compressed or slightly cylindrical and flagellomeres 10–11 and following depressed (flattened ventrally and this flattened area covered with short sensory setae); maximum width of flagellum about twice minimum width of first flagellomere; flagellum strongly tapered towards apex (Fig. 9C). Clypeus convex, almost triangular, with apex produced into acute point, about once as long as distance between clypeal foveae (Fig. 9G). Mandible short, about 2 times as long as its width at the middle (Fig. 9G), lower tooth slightly longer than upper tooth. Malar space about 0.80 times as long as basal width of mandible (Fig. 9G). Occipital carina absent dorsally, ventrally joining hypostomal carina just beyond mandible. Ocellar-ocular distance and distace between hind ocelli about once maximum diameter of lateral ocellus. Face coriaceous, matt and with moderately long silvery hairs (Fig. 9G). Frons matt, coriaceous. Vertex slightly coriaceous, with very sparse short hairs, lower vertex and occiput centrally concave; gena slightly coriaceous, occiput and gena with scattered silvery hairs.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar without carina. Pronotum granulate, laterally not longitudinally strigose and with sparse silvery hairs. Mesoscumum coriaceous, slightly shiny, not strigose in the area between posterior end of notauli. Notauli reaching tegula level, convergent, strongly impressed and without clear transverse wrinkles along its length. Prescutelar groove with short longitudinal wrinkles. Scutellum weakly coriaceous, with lateral carinae present only at anterior end of the scutellum. Mesopleurum granulate, with very dense punctures and white long hairs. Mesopleural fovea present far in front of mesopleural suture. Sternaulus inconspicuous. Metapleurum and propodeum densely punctate or rugose-punctate on a coriaceous background, with dense whitish hairs. Posterior transverse carina of mesosternum complete (not interrupted in-front of each middle coxa). Propodeum long, its spiracle round and very small. Anterior transverse carina absent. Posterior transverse carina present in centre and in area posteroexterna, absent laterally, very slightly undulating along its length. Propodeum with short transverse carinae just before mid-length. Median longitudinal carinae of propodeum absent; lateral longitudinal carina absent anterior to posterior transverse carina, present behind it. Pleural carina strong. Area petiolaris confluent with areas posteroexterna. Vein 2*rs-m* very short, about 0.20 length of *M*. Vein 2*m-cu* almost vertical and with one short bulla. *M+Cu* of hind wing strongly arched. Hind wing with distal abscissa of Cu_1 pigmented. Vein *cu-a* clearly shorter than abscissa of *Cu* between *M* and Cu_1 (Fig. 9J). Distad abscissa of 1*A* of hind wing short. Base of hind coxa of moderate depth, with a short transverse shallow groove next to its attachment. Tibiae and tarsi with sparse and stout bristles, bristles stronger on hind leg.

Metasoma. First tergite smooth, polished, very slightly coriaceous and about 1.70 times as long as maximum width; its maximum width at apex about 3.00 times mini-

mum width (at base). Median dorsal and dorsolateral carinae of first tergite absent, ventrolateral carinae more or less distinct posteriorly. Spiracle at mid length of first tergite. Tergites 2-4 smooth and polished, laterally with short, sparse hairs; tergites 5-8 rather densely pubescent. Thyridium present as short impressed and granulate furrow. Ovipositor sheath about 0.60 times as long as hind tibia, truncate at apex. Ovipositor moderately slender and slightly down curved (Fig. 9C), its tip elongate lanceolate, nodus weak, its lower valve without oblique ridges at apex.

Coloration (Fig. 9C). Head dark brownish with mandibles (except of brown teeth), palpi and clypeus mostly white or creamy white. Antenna dark brown with broad white band on flagellar segments 7-14. Mesosoma reddish with whitish marks on anterior side of pronotum and subtegular area. Legs mostly light brown with darker lighter coloration mostly in trochanters and hind femur, tibia and distal tarsomere. Metasoma dark brown with broad whitish bands on hind edges of tergites 1-2 and with a very narrow apical whitish band on tergites 4-6; tergite 7 whitish. Ovipositor sheath dark brown, ovipositor yellowish.

Male. Unknown.

Taxonomic discussion. This species differs from all other species of the genus by the following characters in combination: mesoscutum and scutellum reddish, without white V-shaped marks; face without white orbits; metasoma dark brown with broad whitish bands on hind edges of tergites 1-2 and with a very narrow apical whitish band on tergites 4-6, tergite 7 whitish; and hind wing vein *cu-a* shorter than abscissa of *Cu* between *M* and Cu_1.

Etymology. This species is dedicated to the Peruvian Matses people, who live in the Department of Loreto, Peru.

Phenology. Adults fly from October to December.

Distribution. Peru.

Habitat. This species occurs in the National Reserve of Allpahuayo-Mishana, in a rain forests growing on clayish soils (see habitat notes of *T. bora*).

Tamaulipeca sp.

Fig. 9D

Material examined. ECUADOR, 1 ♂, Dept. Orellana, Tiputini, 0°37'55.7"S, 76°8'39"W, Canopy fogging, 220–250 m., 6.II.1999, T. L. Erwin et al. Lot.1802 (USNM).

Male. Body length about 3.4 mm, head length × width 0.6 × 0.9 mm, mesosoma length × width (mesoscutum) 1.4 × 0.5 mm, fore wing length 3.5 mm, flagellum 5.0 mm.

Head. Transverse, 0.70 times as long as wide, strongly narrowed behind eyes, gena slightly rounded (dorsal view). Antenna with 25 flagellomeres; flagellum longer than body, 1.40 times as long as fore wing (Fig. 9D). Clypeus convex, triangular, pointed at apex. Mandible about twice as long as width at middle, teeth equal (upper tooth slightly broken). Malar space about 0.40 times as long as basal width of mandible. Occipital carina absent dorsally, ventrally joining hypostomal carina before mandible.

Ocellar-ocular distance and distance between hind ocelli 1.0 and 1.40 times maximum diameter of lateral ocellus, respectively. Face finely coriaceous, with sparse setiferous punctures, the hairs short and silvery. Frons finely coriaceous and shiny. Vertex slightly coriaceous, elevated above the eye level, abruptly folded behind hind ocelli in a vertical lower vertex, lower vertex and occiput smooth and shiny, deeply concave in the centre; gena shiny, slightly coriaceous, hairless in upper half, with silvery hairs in lower part.

Mesosoma. Upper margin of pronotum not swollen. Lateral part of collar without carina. Pronotum slightly coriaceous, shortly longitudinally strigose on lower hind corner. Mesoscutum slightly coriaceous, shiny. Notauli reaching tegula level, convergent. Prescutelar groove almost smooth, at most with very weak longitudinal wrinkles. Scutellum slightly coriaceous, with lateral carinae present only at anterior end. Mesopleuron coriaceous with short and sparse white hairs. Sternaulus slightly impressed anteriorly. Mesopleural fovea represented by a weak impression far in front of mesopleural suture. Metapleuron punctate or rugulose-punctate on a slightly coriaceous background, with short whitish hairs. Propodeum long, granulate, its spiracle round and very small. Anterior transverse carina absent. Posterior transverse carina present in the centre, absent laterally. Median longitudinal carinae of propodeum absent, lateral longitudinal carina almost absent, only present prior to posterior transverse carina. Pleural carina strong. Areolet completely absent, without any trace of *3rs-m* unpigmented. Hind wing with distal abscissa of Cu_1 pigmented. Vein *cu-a* shorter than abscissa of *Cu* between *M* and Cu_1. Distad abscissa of 1*A* of hind wing present but not complete. Tibiae and tarsi with sparse stout bristles, stronger and denser on hind leg. Hind femur with some stout bristles on dorsal and ventral edge.

Metasoma. First tergite smooth and polished, about 2.20 times as long as width, laterally with isolated short silvery hairs. Median dorsal carinae of first tergite absent, dorsolateral carinae present at base, ventrolateral carinae present at middle. Spiracle at anterior 0.4 of first tergite. Tergite 2 shiny and slightly coriaceous, with short and very sparse hairs laterally. Tergites 3-8 coriaceous, rather densely pubescent. Thyridium weak, present as a weak transverse and yellowish depression. Claspers slightly triangular at apex, however, apex widely, not narrowly, pointed.

Coloration (Fig. 9D). Blackish to dark brown. Mandibles, palpi, front and mid legs, hind femora and tarsi (except distal tarsomeres) from orange to light yellowish. Second and third tarsomeres of middle and hind tarsi whitish. Wings clear with veins and pterostigma dark brown.

Remarks. We have not been able to link this male with any of the *Tamaulipeca* females we have seen. It seems that the male is not *T. candoshi* as hind wing vein *cu-a* is shorter than the abscissa of *Cu* between *M* and Cu_1.

Habitat. The specimen was collected by canopy fogging in Tiputini, Department of Orellana, Ecuador. Vegetation at the site is old and diverse primary rain forest growing on relatively nutrient-rich soils.

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